

Revisions to Chapter 45- Oklahoma Water Quality Standards

1) The definitions of the following terms in section 785:45-1-2 are not effective for CWA purposes...

- ...because of EPA disapproval:
 - seasonal seven-day, two-year low flow
 - seasonal 7Q2
 - seven-day, two-year low flow
 - 7Q2
- ...because they are not considered water quality standards:
 - fresh groundwater
 - PQL

2) Section 785:45-5-25(d) is not effective for CWA purposes, as it is not considered a water quality standard.

3) These regulations contain additional provisions related to groundwater in Subchapter 7 that are outside the scope of the Clean Water Act and the implementing federal regulations, but are included here as supplementary information.

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**TITLE 785. OKLAHOMA WATER RESOURCES BOARD
CHAPTER 45. OKLAHOMA'S WATER QUALITY STANDARDS**

Introduction:

This document contains emergency amendments to Chapter 45 adopted by the Oklahoma Water Resources Board that became effective May 5, 2002. Also, this document was prepared by Oklahoma Water Resources Board staff as a convenience to the reader, and is not a copy of the official Title 785 of the Oklahoma Administrative Code. The rules in the official Oklahoma Administrative Code control if there are any discrepancies between the Code and this document.

EMERGENCY RULES

**SUBCHAPTER 5. SURFACE WATER
QUALITY STANDARDS**

PART 5. SPECIAL PROVISIONS**785:45-5-28. Implementation policy for total phosphorus criterion**

(a) This section shall be construed as the separate rule addressing the total phosphorus criterion established by OAC 785:45-5-19 and 785:45-5-25.

(b) The numeric total phosphorus criterion for Scenic Rivers shall be effective and enforceable as authorized by state law on July 1, 2002.

(c) State law recognizes that the Oklahoma Department of Environmental Quality, the Oklahoma Board of Agriculture, and other agencies have the jurisdictional area of

environmental responsibility to implement the numeric phosphorus criterion through Water Quality Standards Implementation Plans and other rules, permits, settlement agreements, consent orders, compliance orders or compliance schedules.

(d) For those Scenic Rivers that may currently exceed the criterion established by OAC 785:45-5-19, an instream total phosphorus concentration measured in such Scenic Rivers shall be targeted for June 30, 2012 to consistently comply with the criterion.

[Source: Added at 19 Ok Reg 1589, emergency effective 5-6-02; effective through 7-14-03 unless superseded by another rule or disapproved by the Legislature]

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**TITLE 785. OKLAHOMA WATER RESOURCES BOARD
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Introduction:

This document contains amendments to Chapter 45 promulgated by the Oklahoma Water Resources Board effective July 1, 2002. This document was prepared by Oklahoma Water Resources Board staff as a convenience to the reader, and is not a copy of the official Title 785 of the Oklahoma Administrative Code. The rules in the official Oklahoma Administrative Code control if there are any discrepancies between the Code and this document.

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1. General Provisions.....	785:45-1-1
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5. Surface Water Quality Standards	785:45-5-1
7. Groundwater Quality Standards.....	785:45-7-1

Appendix A.	Designated Beneficial Uses for Surface Waters
Appendix B.	Areas With Waters of Recreational and/or Ecological Significance
Appendix C.	Suitability of Water for Livestock and Irrigation Uses
Appendix D.	Classifications for Groundwater in Oklahoma
Appendix E.	Requirements for Development of Site Specific Criteria for Metals
Appendix F.	Statistical Values of the Historical Data for Mineral Constituents of Water Quality (beginning October 1976 ending September 1983, except as indicated)
Appendix G.	Numerical Criteria to Protect Beneficial Uses
Appendix H.	Beneficial Use Designations for Certain Groundwater [Reserved]
[Authority: 82 O.S., Sections 1085.2 and 1085.30]	

SUBCHAPTER 1. GENERAL PROVISIONS

Section

- 785:45-1-1. Purpose
- 785:45-1-2. Definitions
- 785:45-1-3. Adoption and enforceability of the standards
- 785:45-1-4. Testing procedures
- 785:45-1-5. Revision procedures
- 785:45-1-6. Errors and separability

785:45-1-1. Purpose

(a) The Oklahoma Water Resources Board's statutory authority and responsibility concerning establishment of standards of quality of waters of the state are provided for under 82 O.S., §1085.30. Under this statute the Oklahoma Water Resources Board is authorized to promulgate rules *which establish classifications of uses of waters of the state, criteria to maintain and protect such classifications, and other standards or policies pertaining to the quality of such waters* [82:1085.30(A)]. These Standards are designed to maintain and protect the quality of the waters of the state.

(b) The Standards specify numerical and narrative criteria to protect beneficial uses designated for certain waters of the State. Beneficial use designations can be found in Appendix A of this Chapter for listed surface waters and in 785:45-5-3 for unlisted surface waters. The numerical and narrative criteria assigned to protect surface water beneficial uses are shown in Subchapter 5 of this Chapter. Classifications for groundwater can be found in Subchapter 7 and Appendix D of this Chapter. Narrative criteria to protect groundwater are shown in Subchapter 7 of this Chapter. The criteria that are the standards for a specific water of the State are the most stringent assigned to its designated beneficial uses. Since these criteria will protect the most sensitive use assigned, they will protect all

designated uses. The purpose of the Standards is to promote and protect as many beneficial uses as are attainable and to assure that degradation of existing quality of waters of the State does not occur.

[Source: Amended at 9 Ok Reg 1889, eff 5-26-92; Amended at 12 Ok Reg 3305, eff 7-27-95; Amended at 18 Ok Reg 3377, eff 8-13-01; Amended at 19 Ok Reg 2511, eff 7-1-2002]

785:45-1-2. Definitions

The following words and terms, when used in this Chapter, shall have the following meaning unless the context clearly indicates otherwise:

"Abatement" means reduction of the degree or intensity of pollution.

"Acute test failure" means greater than or equal to 50% lethality to appropriate test organisms in 100% effluent in 48 hours.

"Acute toxicity" means greater than or equal to 50% lethality to appropriate test organisms in a test sample.

"Alpha particle" means a positively charged particle emitted by certain radioactive materials. It is the least penetrating of the three common types of radiation (alpha, beta and gamma) and usually is not dangerous to plants, animals or humans.

"Ambient" means surrounding, especially of or pertaining to the environment about an entity, but undisturbed and unaffected by it.

"Aquifer" means a formation that contains sufficient saturated, permeable material to yield significant quantities of water to wells and springs. This implies an ability to store and transmit water; unconsolidated sands and gravels are typical examples.

"Assimilative capacity" means the amount of pollution a waterbody can receive and still maintain the water quality standards designated for that waterbody.

"Attainable uses" means the best uses achievable for a particular waterbody given water of adequate quality. The process of use attainability analysis can, and in certain cases must, be used to determine attainable uses for a waterbody.

"Beneficial uses" means a classification of the waters of the State, according to their best uses in the interest of the public.

"Benthic macroinvertebrates" means invertebrate animals that are large enough to be seen by the unaided eye, can be retained by a U. S. Standard No. 30 sieve, and live at least part of their life cycles within or upon available substrate in a body of water or water transport system.

"Best Available Technology" means the best proven technology, treatment techniques or other economically viable means which are commercially available.

"Best Management Practices" (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the state or United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

"Beta particle" means a negatively charged elementary particle emitted by radioactive decay that may cause skin burns. It is easily stopped by a thin sheet of metal.

"Bioconcentration factor (BCF)" means the relative measure of the ability of a contaminant to be stored in tissues and thus to accumulate through the food chain and is shown as the following formula: $BCF = \frac{\text{Tissue Concentration}}{\text{Water Concentration}}$.

"BOD" means biochemical oxygen demand.

"Carcinogenic" means cancer producing.

"Chronic test failure" is the statistically significant difference (at the 95% confidence level) between survival of the appropriate test organism in the chronic low flow dilution (LFD) after 7 or 21 days and a control. Statistical analyses shall be consistent with methods described in EPA's publication no. 600/14-

89/001, "Short-Term Methods For Estimating The Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms", or most recent revision.

"Chronic toxicity" means a statistically significant difference (at the 95% confidence level) between longer-term survival and/or reproduction or growth of the appropriate test organisms in a test sample and a control. Teratogenicity and mutagenicity are considered to be effects of chronic toxicity.

"Coliform group organisms" means all of the aerobic and facultative anaerobic gram-negative, non-spore-forming rod shaped bacteria that ferment lactose broth with gas formation within 48 hours at 35°C.

"Color" means true color as well as apparent color. True color is the color of the water from which turbidity has been removed. Apparent color includes not only the color due to substances in solution (true color), but also that color due to suspended matter.

"Conservative element" means a substance which persists in the environment, having characteristics which are resistant to ordinary biological or chemical degradation or volatilization.

"Conservation plan" means, but is not limited to, a written plan which lists activities, management practices and maintenance or operating procedures designed to promote natural resource conservation and is intended for the prevention and reduction of pollution of waters of the state.

"Critical temperature" means the higher of the seven-day maximum temperature likely to occur with a 50% probability each year, or 29.4°C (85°F).

"Criterion" means a number or narrative statement assigned to protect a designated beneficial use.

"Degradation" means any condition caused by the activities of humans which result in the prolonged impairment of any constituent of the aquatic environment.

"Designated beneficial uses" means those uses specified for each waterbody or segment whether or not they are being attained.

"Dissolved oxygen (DO)" means the amount of oxygen dissolved in water at any

given time, depending upon the water temperature, the partial pressure of oxygen in the atmosphere in contact with the water, the concentration of dissolved organic substances in the water, and the physical aeration of the water.

"DRASTIC" means that standardized system developed by the United States Environmental Protection Agency for evaluating groundwater vulnerability to pollution, based upon consideration of depth to water (D), net recharge (R), aquifer media (A), soil media (S), topography (T), impact of the vadose zone media (I), and hydraulic conductivity (C) of the aquifer.

"EPA" means the United States Environmental Protection Agency.

"Ephemeral stream" means an entire stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.

"Epilimnion" means the uppermost homothermal region of a stratified lake.

"Eutrophication" means the process whereby the condition of a waterbody changes from one of low biologic productivity and clear water to one of high productivity and water made turbid by the accelerated growth of algae.

"Existing beneficial uses" means those uses listed in Title 40 CFR §131.3 actually attained by a waterbody on or after November 28, 1975. These uses may include public water supplies, fish and wildlife propagation, recreational uses, agriculture, industrial water supplies, navigation, and aesthetics.

"Existing Point Source Discharge(s)" means, for purposes of 785:45-5-25, point source discharges other than stormwater which were/are in existence when the ORW, HQW or SWS designation was/is assigned to the water(s) which receive(s) the discharge. The load from a point source discharge which is subject to the no increase limitation shall be based on the permitted mass loadings and concentrations, as appropriate, in the discharge permit effective when the limitation was assigned. Publicly owned treatment works may use design flow, mass loadings or concentration as appropriate if those flows, loadings or concentrations were approved as a portion of

Oklahoma's Water Quality Management Plan prior to the application of the ORW, HQW, or SWS limitation.

"Fecal coliform" means a group of organisms common to the intestinal tracts of humans and of animals. The presence of fecal coliform bacteria in water is an indicator of pollution and of potentially dangerous bacterial contamination.

"Fresh groundwater" means groundwater with naturally-occurring concentrations of total dissolved solids less than 10,000 mg/L, or with levels of total dissolved solids of 10,000 or more mg/L caused by human activities.

"Geometric mean" means the nth root of the product of the samples.

"Groundwater" means *waters of the state under the surface of the earth regardless of the geologic structure in which it is standing or moving outside the cut bank of any definite stream.* [82: 1020.1(A)]

"Groundwater basin" means a distinct underground body of water overlain by contiguous land and having substantially the same geological and hydrological characteristics and yield capabilities". [82: 1020.1(C)]

"HLAC" means Habitat Limited Aquatic Community, described in OAC 785:45-5-12(b).

"Intolerant climax fish community" means habitat and water quality adequate to support game fishes or other sensitive species introduced or native to the biotic province or ecological region, which require specific or narrow ranges of high quality environmental conditions.

"Lake" means:

(A) An impoundment of waters of the state over 50 acre-feet in volume which is either:

- (i) owned or operated by federal, state, county, or local government or
- (ii) appears in Oklahoma's Clean Lakes Inventory.

(B) Surface impoundments which are used as a treatment works for the purpose of treating stabilizing or holding wastes are excluded from this definition.

"LC₅₀" means lethal concentration and is the concentration of a toxicant in an external medium that is lethal to fifty percent of the test animals for a specified period of exposure.

"Long-Term Average Flow" means an arithmetic average stream flow over a representative period of record.

"MDL" means the Method Detection Limit and is defined as the minimum concentration of an analyte that can be measured and reported with 99% confidence that the analyte concentration is greater than zero (0). MDL is dependent upon the analyte of concern.

"Mixing zone" means when a liquid of a different quality than the receiving water is discharged into the receiving water, a mixing zone is formed. Concentration of the liquid within the mixing zone decreases until it is completely mixed with receiving water. A regulatory mixing zone is described in 785:45-5-26.

"Narrative Criteria" means statements or other qualitative expressions of chemical, physical or biological parameters that are assigned to protect a beneficial use.

"Natural source" means source of contamination which is not human induced.

"NLW Impairment Study" means a scientific process of surveying the chemical, physical and biological characteristics of a nutrient threatened reservoir to determine whether the reservoir's beneficial uses are being impaired by human-induced eutrophication.

"Non-conservative element" means a substance which undergoes significant short-term degradation or change in the environment other than by dilution.

"Nonpoint source" means a source of pollution without a well defined point of origin.

"Normal stream flow conditions" means flow corresponding to low gradient areas in the hydrograph.

"NTU" means Nephelometric Turbidity Unit, which is the unit of measure using the method based upon a comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension (formazin). The higher the intensity of scattered light, the higher the turbidity.

"Numerical criteria" means concentrations or other quantitative measures of chemical, physical or biological parameters that are assigned to protect a beneficial use.

"Numerical standard" means the most stringent of the numerical criteria assigned to the beneficial uses for a given stream.

"Nutrient impaired reservoir" means a reservoir with a beneficial use or uses determined by an NLW Impairment Study to be impaired by human-induced eutrophication.

"Nutrient-limited watershed" means a watershed of a waterbody with a designated beneficial use which is adversely affected by excess nutrients as determined by Carlson's Trophic State Index (using chlorophyll-a) of 62 or greater, or is otherwise listed as "NLW" in Appendix A of this Chapter.

"Nutrients" means elements or compounds essential as raw materials for an organism's growth and development; these include carbon, oxygen, nitrogen and phosphorus.

"Picocurie (pCi)" means that quantity of radioactive material producing 2.22 nuclear transformations per minute.

"Point source" means any discernable, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, well, discrete fissure, container, rolling stock or concentrated animal feeding operation from which pollutants are or may be discharged. This term does not include return flows from irrigation agriculture.

"Pollutant" means any material, substance or property which may cause pollution.

"Pollution" means *contamination or other alteration of the physical, chemical or biological properties of any natural waters of the State, or such discharge of any liquid, gaseous or solid substance into any waters of the State as will or is likely to create a nuisance or render such waters harmful, or detrimental or injurious to public health, safety or welfare, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses, or to livestock, wild animals, birds, fish or other aquatic life*. [82: §1084.2(1)]

"Polychlorinated biphenyls (PCBs)" means a group of organic compounds (206 possible) which are constructed of two phenyl rings and more than one chlorine atom.

"PQL" means Practical Quantitation Limit and is defined as 5 times the MDL. The PQL

represents a practical and routinely achievable detection limit with high confidence.

"Put and take fishery" means the introduction of a fish species into a body of water for the express purpose of sport fish harvest where existing conditions preclude a naturally reproducing population.

"Salinity" means the concentration of salt in water.

"Sample standard" means the arithmetic mean of historical data from October 1976 to September 1983 except as otherwise provided in Appendix F of this Chapter, plus two standard deviations of the mean.

"Seasonal base flow" means the sustained or fair-weather runoff, which includes but is not limited to groundwater runoff and delayed subsurface runoff.

"Seasonal seven-day, two-year low flow" means the design flow for determining allowable BOD load to a stream.

"Seasonal 7Q2" means the seasonal seven-day, two-year low flow.

"Sensitive representative species" means *Ceriodaphnia dubia*, *Daphnia magna*, *Daphnia pulex*, *Pimphales promelas* (Fathead minnow), *Lepomis macrochirus* (Bluegill sunfish), or other sensitive organisms indigenous to a particular waterbody.

"Seven-day, two-year low flow" means the design flow for determining allowable discharge load to a stream.

"7Q2" means the seven-day, two-year low flow.

"Standard deviation" means a statistical measure of the dispersion around the arithmetic mean of the data.

"Standard Methods" means the publication "Standard Methods for the Examination of Water and Wastewater", published jointly by the American Public Health Association, American Water Works Association, and Water Environment Federation.

"Standards", when capitalized, means this Chapter, which constitutes the Oklahoma Water Quality Standards described in 82 O.S. §1085.30. Whenever this term is not capitalized or is singular, it means the most stringent of the criteria assigned to protect the beneficial uses designated for a specified water of the State.

"Storm water" means storm water runoff, snow melt runoff, and surface runoff and drainage.

"Subwatershed" means a smaller component of the larger watershed.

"Synergistic effect" means the presence of cooperative pollutant action such that the total effect is greater than the sum of the effects of each pollutant taken individually.

"Thermal pollution" means degradation of water quality by the introduction of heated effluent and is primarily a result of the discharge of the cooling waters from industrial processes, particularly from electrical power generation.

"Thermal stratification" means horizontal layers of different densities produced in a lake caused by temperature.

"Variance" means a temporary (not to exceed three years) exclusion of a specific numerical criterion for a specific discharge to a specific waterbody.

"Warm Water Aquatic Community" means a subcategory of the beneficial use category "Fish and Wildlife Propagation" where the water quality and habitat are adequate to support intolerant climax fish communities and includes an environment suitable for the full range of warm water benthos.

"Wastes" means *industrial waste and all other liquid, gaseous or solid substances which may pollute or tend to pollute any waters of the state*. [82 O. S. §1084.2(2)]

"Waterbody" means any specified segment or body of waters of the state, including but not limited to an entire stream or lake or a portion thereof.

"Water quality" means physical, chemical, and biological characteristics of water which determine diversity, stability, and productivity of the climax biotic community or affect human health.

"Waters of the state" means *all streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface and underground, natural or artificial, public or private, which are contained within, flow through, or border upon this State or any portion thereof* [82:1084.2(3)].

"Watershed" means the drainage area of a waterbody including all direct or indirect tributaries.

"WWAC" means Warm Water Aquatic Community.

"Yearly mean standard" means the arithmetic mean of historical data from October 1976 to September 1983 except as otherwise provided in Appendix F of this Chapter, plus one standard deviation of the mean. The moving yearly mean standard is an average of the last five years of available data.

"Zone of passage" means a three dimensional zone expressed as a volume in the receiving stream through which mobile aquatic organisms may traverse the stream past a discharge without being affected by it. A regulatory zone of passage is described in 785:45-5-26.

[**Source:** Amended at 9 Ok Reg 1889, eff 5-26-92; Amended at 9 Ok Reg 2625, eff 6-25-92; Amended at 11 Ok Reg 2959, eff 6-13-94; Amended at 12 Ok Reg 3305, eff 7-27-95; Amended at 14 Ok Reg 2786, eff 7-1-97; Amended at 15 Ok Reg 2872, eff 7-1-98; Amended at 16 Ok Reg 3237-3240, eff 7-12-99; Amended at 17 Ok Reg 1718-1722, eff 7-1-00; Amended at 18 Ok Reg 3377, eff 8-13-01; Amended at 19 Ok Reg 2511, eff 7-1-2002]

785:45-1-3. Adoption and enforceability of the standards

(a) The Oklahoma Water Quality Standards are adopted and promulgated as rules by the Oklahoma Water Resources Board pursuant to the procedures specified in the Oklahoma Administrative Procedures Act, 75 O.S., §250 et. seq., and the procedures and substantive law provided in 82 O.S., §1085.30, and are fully enforceable under the laws of Oklahoma.

(b) All *waters of the state*, as defined in 82 O.S. §1084.2(3), are protected by these Standards.

(c) Oklahoma Water Quality Standards adopted and promulgated by the Oklahoma Water Resources Board shall be applicable to all activities which may affect the water quality of waters of the state and *shall be utilized by all appropriate state environmental agencies in implementing their respective duties to abate*

and prevent pollution to waters of the state. [82:1085.2(15)]

[**Source:** Amended at 9 Ok Reg 1889, eff 5-26-92; Amended at 12 Ok Reg 3305, eff 7-27-95]

785:45-1-4. Testing procedures

All methods of sample collection, preservation, and analysis used in applying any of the standards shall be in accordance with "The Guidelines Establishing Test Procedures for the Analysis of Pollutants" as provided by 40 Code of Federal Regulations, Part 136 (40 CFR Part 136); "Methods of Measuring the Acute Toxicity of Effluent to Freshwater and Marine Organisms", "Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms", "Test Methods for Escherichia coli and Enterococci in Water by the Membrane Filter Procedure", or other procedures approved by the Department of Environmental Quality's Laboratory Certification Program.

[**Source:** Amended at 9 Ok Reg 1889, eff 5-26-92; Amended at 18 Ok Reg 3377, eff 8-13-01; Amended at 19 Ok Reg 2511, eff 7-1-2002]

785:45-1-5. Revision procedures

(a) Any person may petition the Board, under 785:1-5-4, to modify or repeal any criterion or beneficial use designation.

(b) The petitioner, through objective and acceptable scientific studies, data and other information, shall be required to show that the requested modification or repeal will be in accordance with the requirements of applicable State and Federal law regarding water quality and in the best interest of the State.

(c) Procedures required by applicable State and Federal law for revising the designated beneficial

uses and criteria or water quality shall be followed in any revision which is the subject of the petition.

[**Source:** Amended at 12 Ok Reg 3305, eff 7-27-95]

785:45-1-6. Errors and separability

(a) Errors resulting from inadequate and erroneous data or human or clerical oversight

will be subject to correction by the Oklahoma Water Resources Board.

(b) The discovery of such errors does not render the remaining and unaffected Standards invalid.

(c) If any provision of these Standards, or the application of any provision of these Standards to any person or circumstances is held to be invalid, the application of such provisions to other persons and circumstances and the remainder of the Standards shall not be affected thereby.

SUBCHAPTER 3. ANTIDEGRADATION REQUIREMENTS

Section

785:45-3-1. Purpose of antidegradation policy statement

785:45-3-2. Applications of antidegradation policy

785:45-3-1. Purpose; antidegradation policy statement

(a) Waters of the state constitute a valuable resource and shall be protected, maintained and improved for the benefit of all the citizens.

(b) It is the policy of the State of Oklahoma to protect all waters of the state from degradation of water quality, as provided in OAC 785:45-3-2 and Subchapter 13 of OAC 785:46.

[Source: Amended at 15 Ok Reg 2872, eff 7-1-98]

785:45-3-2. Applications of antidegradation policy

(a) **Application to outstanding resource waters (ORW).** Certain waters of the state constitute an outstanding resource or have exceptional recreational and/or ecological significance. These waters include streams designated "Scenic River" or "ORW" in Appendix A of this Chapter, and waters of the State located within watersheds of Scenic Rivers. Additionally, these may include waters located within National and State parks, forests, wilderness areas, wildlife management areas, and wildlife refuges, and waters which contain species listed pursuant to the federal Endangered Species Act as described in

785:45-5-25(c)(2)(A) and 785:46-13-6(c). No degradation of water quality shall be allowed in these waters.

(b) **Application to high quality waters (HQW).** It is recognized that certain waters of the state possess existing water quality which exceeds those levels necessary to support propagation of fishes, shellfishes, wildlife, and recreation in and on the water. These high quality waters shall be maintained and protected.

(c) **Application to beneficial uses.** No water quality degradation which will interfere with the attainment or maintenance of an existing or designated beneficial use shall be allowed.

(d) **Application to improved waters.** As the quality of any waters of the state improve, no degradation of such improved waters shall be allowed.

(e) **Application to thermal discharge.** In cases where potential water quality impairment associated with a thermal discharge is involved, the anti-degradation policy and implementation method shall be consistent with Section 316 of Public Law 92-500 as amended.

[Source: Amended at 9 Ok Reg 1889, eff 5-26-92, and 9 Ok Reg 2625, eff 6-25-92; Amended at 15 Ok Reg 2872, eff 7-1-98]

SUBCHAPTER 5. SURFACE WATER QUALITY STANDARDS

PART 1. GENERAL PROVISIONS

Section

785:45-5-1. Declaration of policy; authority of Board

785:45-5-2. Beneficial uses: existing and designated

785:45-5-3. Beneficial uses: default designations

785:45-5-4. Applicability of narrative and numerical criteria

PART 3. BENEFICIAL USES AND CRITERIA TO PROTECT USES

785:45-5-10. Public and private water supplies

785:45-5-11. Emergency public and private water supplies

785:45-5-12. Fish and wildlife propagation

785:45-5-13. Agriculture: livestock and irrigation

- 785:45-5-14. Hydroelectric power generation
- 785:45-5-15. Industrial and municipal process and cooling water
- 785:45-5-16. Primary Body Contact Recreation
- 785:45-5-17. Secondary Body Contact Recreation
- 785:45-5-18. Navigation
- 785:45-5-19. Aesthetics
- 785:45-5-20. Fish consumption

PART 5. SPECIAL PROVISIONS

- 785:45-5-25. Implementation policies for the antidegradation policy statement
- 785:45-5-26. Mixing zones and zones of passage
- 785:45-5-27. [REVOKED]

PART 1. GENERAL PROVISIONS

785:45-5-1. Declaration of policy; authority of Board

(a) **General policy to protect, maintain and improve water quality.** Title 82 of the Oklahoma Statutes, Section 1084.1, provides as follows: *Whereas the pollution of the waters of this state constitutes a menace to public health and welfare, creates public nuisances, is harmful to wildlife, fish and aquatic life, and impairs domestic, agricultural, industrial, recreational and other legitimate beneficial uses of water, it is hereby declared to be the public policy of this state to conserve and utilize the waters of the state and to protect, maintain and improve the quality thereof for public water supplies, for the propagation of wildlife, fish and aquatic life and for domestic, agricultural, industrial, recreational and other legitimate beneficial uses...*

(b) Board authority to promulgate Standards.

(1) Title 82 of the Oklahoma Statutes, Section 1085.30 provides that the Board is authorized to adopt, amend and otherwise promulgate rules to be known as "Oklahoma Water Quality Standards" which establish classifications of uses of waters of the state, criteria to maintain and protect such classifications, and other standards or policies pertaining to the quality of such waters. *The...Standards shall, at a*

minimum, be designed to maintain and protect the quality of the waters of the state.

(2) *Wherever the Board finds it is practical and in the public interest to do so, the rules may be amended to upgrade and improve progressively the quality of waters of the state.*

(3) *The Board may also amend the Standards to downgrade a designated use of any waters of this state which is not an existing use, may establish subcategories of a use or may provide for less stringent criteria or other provisions thereof only in those limited circumstances permissible under the Federal Water Pollution Control Act as amended or federal rules which implement said act. Provided, the Board may amend the...Standards to downgrade a designated use, establish subcategories of a use or may provide for less stringent criteria or other provisions thereof only to the extent as will maintain or improve the existing uses and the water quality of the water affected. Provided further, the Board shall not modify the...Standards applicable to scenic river areas as such areas are described by Section 1452 of Title 82 of the Oklahoma Statutes, to downgrade a designated use, establish a subcategory of a use or provide for less stringent criteria or other provisions thereof.*

[Source: Amended at 12 Ok Reg 3305, eff 7-27-95; Amended at 18 Ok Reg 3377, eff 8-13-01]

785:45-5-2. Beneficial uses: existing and designated

(a) Beneficial uses are designated for all waters of the state. Such uses are protected through the restrictions imposed by the antidegradation policy statement, narrative criteria and numerical standards. Some uses require higher quality water than others. When multiple uses are assigned to the same waters, all such uses shall be protected. Beneficial uses are also protected by permits or other authorizations issued to meet these Standards for point sources and through practical management or regulatory programs for nonpoint sources. The criteria to protect the beneficial uses designated in 785:45-

5-3 or in Appendix A of this Chapter for certain surface waters of the state are described in sections 785:45-5-10 through 785:45-5-20 of this Chapter.

(b) Beneficial uses designated in 785:45-5-3 or in Appendix A of this Chapter for certain surface waters of the state may be downgraded to a lower use or removed entirely, or subcategories of such designated uses may be established, if:

(1) the use, despite being designated, is not a use which is or has been actually attained in the water body on or after November 28, 1975; and

(2) for the use of Fish and Wildlife Propagation, Primary Body Contact Recreation or Secondary Body Contact Recreation, or any subcategory of such use or uses, it is demonstrated to the satisfaction of the Board and the U.S. E.P.A. that attaining the designated use is not feasible because:

(A) naturally occurring pollutant concentrations prevent the attainment of the use, or

(B) natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating state water conservation requirements to enable uses to be met, or

(C) human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place, or

(D) dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in the attainment of the use, or

(E) physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like,

unrelated to water quality, preclude attainment of aquatic life protection uses, or

(F) controls more stringent than those required by sections 301(b) and 306 of the federal Clean Water Act as amended would result in substantial and widespread economic and social impact; and

(3) such downgrade, removal, or establishment of a subcategory will maintain or improve the quality of water affected.

[Source: Amended at 9 Ok Reg 1889, eff 5-26-92; Amended at 12 Ok Reg 3305, eff 7-27-95; Amended at 15 Ok Reg 2872, eff 7-1-98; Amended at 17 Ok Reg 1722, eff 7-1-00; Amended at 18 Ok Reg 3377, eff 8-13-01]

785:45-5-3. Beneficial uses: default designations

(a) Surface Waters Excluding Lakes.

(1) For those surface waters of the state not listed in Appendix A of this Chapter, excluding lakes, the following beneficial uses are designated:

(A) Agriculture: livestock and irrigation (see 785:45-5-13),

(B) Industrial and Municipal Process and Cooling Water (see 785:45-5-15),

(C) Aesthetics (see 785:45-5-19),

(D) The Warm Water Aquatic Community subcategory of the beneficial use classification Fish and Wildlife Propagation (see 785:45-5-12(c)), and

(E) Primary Body Contact Recreation (see 785:45-5-16).

(2) The beneficial uses described in 785:45-5-10 (Public and Private Water Supplies), 785:45-5-11 (Emergency Public and Private Water Supplies), 785:45-5-12(b) (the Habitat Limited Aquatic Community subcategory of the beneficial use classification Fish and Wildlife Propagation), and 785:45-5-17 (Secondary Body Contact Recreation) shall be designated only following use attainability analyses.

(3) Beneficial use determinations that follow use attainability analyses are subject to administrative rulemaking proceedings including the public hearing process.

(b) **Lakes.**

(1) For lakes, including those listed in Appendix A of this Chapter, the following beneficial uses are designated:

(A) The Warm Water Aquatic Community subcategory of the beneficial use classification Fish and Wildlife Propagation (see 785:45-5-12(c));

(B) Agriculture (see 785:45-5-13);

(C) Industrial and Municipal Process and Cooling Water (see 785:45-5-15);

(D) Primary Body Contact Recreation (see 785:45-5-16); and

(E) Aesthetics (see 785:45-5-19).

(2) The beneficial use of Public and Private Water Supplies (see 785:45-5-10) is specifically designated for certain lakes as provided in Appendix A of this Chapter. For all other lakes, the beneficial uses designated in this paragraph take control over the uses designated for stream segments which include descriptions of lakes or portions thereof identified in Appendix A of this Chapter.

[Source: Amended at 9 Ok Reg 1889, eff 5-26-92; Amended at 11 Ok Reg 2959, eff 6-13-94; Amended at 14 Ok Reg 2786, eff 7-1-97; Amended at 18 Ok Reg 3377, eff 8-13-01; Amended at 19 Ok Reg 2511, eff 7-1-2002]

785:45-5-4. Applicability of narrative and numerical criteria

(a) For purposes of permitting discharges for attainment of numerical criteria, or establishing site specific criteria, streamflows of the greater of 1.0 cfs or 7Q2 shall be used to determine appropriate permit conditions unless otherwise provided in OAC 785:45 or 785:46.

(b) When numerical criteria do not apply, instream conditions including dissolved oxygen concentrations, organoleptic compounds, nutrients, and oil and grease shall be maintained to prevent nuisance conditions caused by man's activities.

(c) Narrative criteria listed in 785:45-5-12(f)(4) and 785:45-5-19(c)(2)-(4) shall be maintained at all times and apply to all surface waters of the State.

(d) If more than one narrative or numerical criteria is assigned to a stream, the most stringent shall be maintained.

(e) A temporary variance may be granted at the sole discretion of the Oklahoma Water Resources Board in limited circumstances only for specific numerical criteria listed in Table 2 of Appendix G of this Chapter addressing water column numerical criteria to protect human health for the consumption of fish flesh and water, for specific numerical criteria listed in Appendix G Table 2 addressing numerical criteria for toxic substances, and for specific numerical criteria listed in Appendix G Table 2 addressing water column numerical criteria to protect human health for the consumption of fish flesh only.

(1) **General requirements and time limits for variance.** A variance or exception to listed numeric criteria may only be granted by the Board so long as the applicant complies with all procedural and application requirements, demonstrates to the satisfaction of the Board that the necessary conditions specified in 785:45-5-4(e)(4) exist, and that the variance will not otherwise be contrary to law or inconsistent with the Board's statutory duties. Variances shall be allowed only in very limited situations. In no circumstances shall a variance be granted which exceeds three (3) years in duration and no renewal shall be allowed.

(2) **Applications and related requirements.** A variance may only be considered and granted upon application of a person for discharge from a specific facility to a specific stream segment(s). All applications for a variance must contain or include as attachments at the time of filing, at a minimum, all written documentation which supports a finding that the necessary conditions listed in 785:45-5-4(e)(4) exist, a description of the specific numerical criterion for which the variance is requested, the legal description of the

stream segment(s) which would receive the discharge and the location of any other affected waters, and such other information as the Board may specify as necessary for adequate review of the application. A fee, as set forth in Chapter 5 of this Title, shall be submitted with the application for variance.

(3) Procedure and scope of variance.

(A) A variance may be granted only by the Oklahoma Water Resources Board, shall be restricted to those listed numerical criteria for which an application is filed, and shall apply only to the specific facility and specific stream segment(s) which receives the discharge.

(B) The applicant for a variance must prepare a public notice whose contents shall reflect the nature of the variance applied for and such other information as the Board may deem appropriate, and shall state the date, time and location of public hearing on the application. Such notice, after submission to and approval by the Board, shall be published at the expense of the applicant once a week for two consecutive weeks, minimum seven day interval, in a newspaper(s) having general circulation in the county(ies) in which the discharge is located. The Board may require additional publication of the notice in additional counties or publications at the applicant's expense. Proof of publication shall be provided as directed by the Board.

(C) The applicant shall deliver or mail such public notice to all persons who are on a standing list for receiving notice of such applications for variances. Such standing list shall be established and maintained by the Board and shall include the Office of the Attorney General, the chief executive of each affected municipality and county, all persons who shall request to receive such notices, and such other persons as may be specified by the Board.

(D) An administrative hearing shall be held not earlier than twenty-one days following the last publication or mailing of notice. At the hearing, the burden of proof shall be upon the applicant to produce evidence which demonstrates to the satisfaction of the Board that all conditions and requirements of these rules and applicable law are met. All interested persons may present oral or written comments prior to or at the hearing on the application, as specified in the notice.

(4) Conditions for variance.

(A) A variance shall be effective only after approval by the U. S. Environmental Protection Agency.

(B) A variance may be granted by the Board only if the following additional conditions are met:

(i) The granting of a variance will not result in the violation of any other OWQS, including those specified for ORW, HQW or other classes of waters; and

(ii) New or previously unavailable information regarding toxicity, bioavailability, persistence or degradation of a specific pollutant refutes the scientific basis for the effective numerical criterion; or

(iii) Non-attainment of a numerical criterion is documented in the stream segment which is the subject of the variance application or in close proximity upstream of such segment, and there is no increase in the concentration of the pollutant which is the subject of the variance outside the mixing zone or at some point downstream of the facility following complete mixing if appropriate relative to the concentration upstream of the facility, and

(l) non-attainment is demonstrated to be the result of natural source concentrations of that pollutant in the water

column, sediment or aquatic life, or

(II) non-attainment is the result of human caused conditions which cannot be remedied or would cause more environmental damage if corrected than if left in place.

(f) Schedules for compliance with the Oklahoma Water Quality Standards may be granted to persons or facilities discharging wastes into waters of the state unless such discharge creates an actual or potential hazard to the public health in accordance with 82 O.S. §1085.30(D).

[Source: Amended at 9 Ok Reg 1889, eff 5-26-92; Amended at 10 Ok Reg 3311, eff 6-25-93; Amended at 12 Ok Reg 3305, eff 7-27-95; Amended at 15 Ok Reg 2872, eff 7-1-98; Amended at 18 Ok Reg 3377, eff 8-13-0; Amended at 19 Ok Reg 2511, eff 7-1-2002]

PART 3. BENEFICIAL USES AND CRITERIA TO PROTECT USES

785:45-5-10. Public and private water supplies

The following criteria apply to surface waters of the state having the designated beneficial use of Public and Private Water Supplies:

(1) **Raw water numerical criteria.** For surface water designated as public and private water supplies, the numerical criteria for substances identified under the "Public and Private Water Supply (Raw Water)" column in Table 2 of Appendix G of this Chapter shall not be exceeded. Raw water numerical criteria are considered long term average standards. For purposes of permitting discharges for attainment of these standards, the permitting authority shall use long term average receiving stream flows and complete mixing of effluent and receiving water to determine appropriate permit limits.

(2) **Radioactive materials.**

(A) There shall be no discharge of radioactive materials in excess of the

criteria found in Oklahoma Radiation Protection Regulations, 1969, or its latest revision.

(B) The concentration of gross alpha particles shall not exceed the criteria specified in (i) through (iv) of this subparagraph, or the naturally occurring concentration, whichever is higher.

(i) The combined dissolved concentration of Radium-226 and Radium-228, and Strontium-90, shall not exceed 5 picocuries/liter, and 8 picocuries/liter, respectively.

(ii) Gross alpha particle concentrations, including Radium-226 but excluding radon and uranium, shall not exceed 15 picocuries/liter.

(iii) The gross beta concentration shall not exceed 50 picocuries/liter.

(iv) The average annual concentration of beta particle and photon radioactivity from man-made radionuclides in waters having the designated use of Public and Private Water supply shall not produce an annual dose equivalent to the total body or any internal organ greater than 4 millirem/year.

(3) **Coliform bacteria.**

(A) The bacteria of the total coliform group shall not exceed a monthly geometric mean of 5,000/100 ml at a point of intake for public or private water supply.

(B) The geometric mean will be determined by multiple tube fermentation or membrane filter procedures based on a minimum of not less than five (5) samples taken over a period of not more than thirty (30) days.

(C) Further, in no more than 5% of the total samples during any thirty (30) day period shall the bacteria of the total coliform group exceed 20,000/100 ml.

(D) In cases where both public and private water supply and primary body contact recreation uses are designated, the primary body contact criteria will apply.

(4) **Oil and grease (petroleum and non-petroleum related).** For Public and Private Water Supplies, surface waters of the State shall be maintained free from oil and grease and taste and odors.

(5) **General criteria.**

(A) The quality of the surface waters of the state which are designated as public and private water supplies shall be protected, maintained, and improved when feasible, so that the waters can be used as sources of public and private raw water supplies.

(B) These waters shall be maintained so that they will not be toxic, carcinogenic, mutagenic, or teratogenic to humans.

(6) **Water Column criteria to protect for the consumption of fish flesh and water.**

(A) Surface waters of the State with the designated beneficial use of Public and Private Water Supply shall be protected to allow for the consumption of fish, shellfish and water.

(B) The water column numerical criteria to protect human health for the consumption of fish flesh and water for the substances identified in Table 2 of Appendix G of this Chapter shall be as prescribed under the "Fish Consumption and Water" column in Table 2 of Appendix G in all surface waters designated with the beneficial use of Public and Private Water Supply. Water column numerical criteria to protect human health for the consumption of fish flesh and water are considered long term average standards. For purposes of permitting discharges for attainment of these standards, the permitting authority shall use long term average receiving stream flows and complete mixing of effluent and receiving water to determine appropriate permit limits. Water column criteria to protect human health for the consumption of fish flesh only may be found in the column "Fish Consumption" in Table 2 of Appendix G of this Chapter.

[Source: Amended at 9 Ok Reg 1889, eff 5-26-92; Amended at 12 Ok Reg 3305, eff 7-27-95; Amended at 14 Ok Reg 2786, eff 7-1-97; Amended at 15 Ok Reg 2872, eff 7-1-98; Amended at 17 Ok Reg 1722-1724; eff 7-1-00; Amended at 18 Ok Reg 3377, eff 8-13-01; Amended at 19 Ok Reg 2511, eff 7-1-2002]

785:45-5-11. Emergency public and private water supplies

(a) During emergencies, those waters designated Emergency Public and Private Water Supplies may be put to use.

(b) Each emergency will be handled on a case-by-case basis, and be thoroughly evaluated by the appropriate State agencies and/or local health authorities.

785:45-5-12. Fish and wildlife propagation

(a) **List of subcategories.** The narrative and numerical criteria in this section are designed to maintain and protect the beneficial use classification of "Fish and Wildlife Propagation". This classification encompasses several subcategories which are capable of sustaining different climax communities of fish and shellfish. These subcategories are Habitat Limited Aquatic Community, Warm Water Aquatic Community, Cool Water Aquatic Community (Excluding Lake Waters), and Trout Fishery (Put and Take).

(b) **Habitat Limited Aquatic Community subcategory.**

(1) Habitat limited aquatic community means a subcategory of the beneficial use "Fish and Wildlife Propagation" where the water chemistry and habitat are not adequate to support a "Warm Water Aquatic Community" because:

(A) Naturally occurring water chemistry prevents the attainment of the use; or

(B) Naturally occurring ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of a sufficient volume of effluent to enable uses to be met; or

(C) Human caused conditions or sources of pollution prevent the

attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place; or

(D) Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the waterbody to its original condition or to operate such modification in a way that would result in the attainment of the use; or

(E) Physical conditions related to the natural features of the waterbody, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of the "Warm Water Aquatic Community" beneficial use.

(2) Habitat Limited Aquatic Community may also be designated where controls more stringent than those required by sections 301(b) and 306 of the federal Clean Water Act as amended, which would be necessary to meet standards or criteria associated with the beneficial use subcategories of Cool Water Aquatic Community or Warm Water Aquatic Community, would result in substantial and widespread economic and social impact.

(c) **Warm Water Aquatic Community subcategory.** Warm Water Aquatic Community means a subcategory of the beneficial use category "Fish and Wildlife Propagation" where the water quality and habitat are adequate to support climax fish communities.

(d) **Cool Water Aquatic Community subcategory.** Cool Water Aquatic Community means a subcategory of the beneficial use category "Fish and Wildlife Propagation" where the water quality, water temperature and habitat are adequate to support cool water climax fish communities and includes an environment suitable for the full range of cool water benthos. Typical species may include smallmouth bass, certain darters and stoneflies.

(e) **Trout Fishery subcategory.** Trout Fishery (Put and Take) means a subcategory of the beneficial use category "Fish and Wildlife Propagation" where the water quality, water temperature and habitat are adequate to support

a seasonal put and take trout fishery. Typical species may include trout.

(f) **Criteria used in protection of fish and wildlife propagation.** The narrative and numerical criteria to maintain and protect the use of "Fish and Wildlife Propagation" and its subcategories shall include:

(1) **Dissolved oxygen.**

(A) Dissolved oxygen (DO) criteria are designed to protect the diverse aquatic communities of Oklahoma.

(B) Allowable loadings designed to attain these dissolved oxygen criteria are provided as follows:

(i) For streams with sufficient historical data, the allowable load shall be based on meeting the dissolved oxygen concentration standard at the seven-day, two-year low flow and the appropriate seasonal temperatures.

(ii) For streams lacking sufficient historical data, or when the appropriate flow is less than one (1) cubic foot per second (cfs), the allowable load shall be based on meeting the dissolved oxygen concentration standard at one (1) cfs and the appropriate seasonal temperature.

(iii) Provided, for streams designated in OAC 785:45 Appendix A as HLAC or WWAC which have sufficient historical data as determined by the permitting authority, the allowable BOD load may be based upon meeting the dissolved oxygen concentration standard at the applicable seasonal temperature and corresponding seasonal seven-day, two-year low flow.

(C) Except for naturally occurring conditions, the dissolved oxygen criteria are as set forth in Table 1 of Appendix G of this Chapter.

(2) **Temperature.**

(A) At no time shall heat be added to any surface water in excess of the amount that will raise the temperature of the

receiving water more than 2.8°C outside the mixing zone.

(B) The normal daily and seasonal variations that were present before the addition of heat from other than natural sources shall be maintained.

(C) In streams, temperature determinations shall be made by averaging representative temperature measurements of the cross sectional area of the stream at the end of the mixing zone.

(D) In lakes, the temperature of the water column and/or epilimnion, if thermal stratification exists, shall not be raised more than 1.7°C above that which existed before the addition of heat of artificial origin, based upon the average of temperatures taken from the surface to the bottom of the lake, or surface to the bottom of the epilimnion if the lake is stratified.

(E) No heat of artificial origin shall be added that causes the receiving stream water temperature to exceed the maximums specified below:

(i) The critical temperature plus 2.8°C in warm water and habitat limited aquatic community streams and lakes except in the segment of the Arkansas River from Red Rock Creek to the headwaters of Keystone Reservoir where the maximum temperature shall not exceed 34.4°C.

(ii) 28.9°C in streams designated cool water aquatic community.

(iii) 20°C in streams designated trout fishery (put and take).

(F) Water in privately-owned reservoirs used in the process of cooling water for industrial purposes is exempt from these temperature restrictions, provided the water released from any such lake or reservoir into a stream system shall meet the water quality standards of the receiving stream.

(3) **pH (hydrogen ion activity).** The pH values shall be between 6.5 and 9.0 in waters designated for fish and wildlife

propagation; unless pH values outside that range are due to natural conditions.

(4) **Oil and grease (petroleum and non-petroleum related).**

(A) All waters having the designated beneficial use of any subcategory of fish and wildlife propagation shall be maintained free of oil and grease to prevent a visible sheen of oil or globules of oil or grease on or in the water.

(B) Oil and grease shall not be present in quantities that adhere to stream banks and coat bottoms of water courses or which cause deleterious effects to the biota.

(5) **Biological Criteria.**

(A) Aquatic life in all waterbodies designated Fish and Wildlife Propagation (excluding waters designated "Trout, put-and-take") shall not exhibit degraded conditions as indicated by one or both of the following:

(i) comparative regional reference data from a station of reasonably similar watershed size or flow, habitat type and Fish and Wildlife beneficial use subcategory designation or

(ii) by comparison with historical data from the waterbody being evaluated.

(B) Compliance with the requirements of 785:45-5-12(f)(5) shall be based upon measures including, but not limited to, diversity, similarity, community structure, species tolerance, trophic structure, dominant species, indices of biotic integrity (IBI's), indices of well being (IWB's), or other measures.

(6) **Toxic substances (for protection of fish and wildlife).**

(A) Surface waters of the state shall not exhibit acute toxicity and shall not exhibit chronic toxicity outside the mixing zone. Acute test failure and chronic test failure shall be used to determine discharger compliance with these narrative aquatic life toxics criteria. The narrative criterion specified in this subparagraph (A) which prohibits

acute toxicity shall be maintained at all times and shall apply to all surface waters of the state. The narrative criterion specified in this subparagraph (A) which prohibits chronic toxicity shall apply at all times outside the mixing zone and within the zone of passage to all waters of the state except:

(i) When a discharge into surface waters designated with the Fish and Wildlife Propagation beneficial use complies with and meets the discharge permit limitations but the flow immediately upstream from the discharge is less than one (1) cubic foot per second or when the flow falls below the seven-day, two-year low-flow, whichever is larger. For purposes of the permitting process, the regulatory low flow shall be the larger of one (1) cubic foot per second or the seven-day, two-year low flow; and

(ii) To streams listed as ephemeral in Appendix A.

(B) Procedures to implement these narrative criteria are found in Oklahoma's Continuing Planning Process document.

(C) Toxicants for which there are specific numerical criteria are listed in Table 2 of Appendix G of this Chapter.

(D) For toxicants not specified in Table 2 of Appendix G of this Chapter, concentrations of toxic substances with bio-concentration factors of 5 or less shall not exceed 0.1 of published LC₅₀ value(s) for sensitive representative species using standard testing methods, giving consideration to site specific water quality characteristics.

(E) Concentrations of toxic substances with bio-concentration factors greater than 5 shall not exceed 0.01 of published LC₅₀ value(s) for sensitive representative species using standard testing methods, giving consideration to site specific water quality characteristics.

(F) Permit limits to prevent toxicity caused by discharge of chlorine and ammonia are determined pursuant to the narrative criteria contained within (A) and (B) of this paragraph.

(G) The acute and chronic numerical criteria listed in the "Fish and Wildlife Propagation" column in Table 2 of Appendix G of this Chapter apply to all waters of the state designed with any of the beneficial use sub-categories of Fish and Wildlife Propagation. The numerical criteria which prohibit acute toxicity apply outside the acute regulatory mixing zone.

(i) The numerical criteria specified in Table 2 of Appendix G which prohibit chronic toxicity shall apply at all times outside the chronic regulatory mixing zone and within the zone of passage to all waters of the state except:

(I) When a discharge into surface waters designated with the Fish and Wildlife Propagation beneficial use complies with and meets the discharge permit limitations but the flow immediately upstream from the discharge is less than one (1) cubic foot per second or when the flow falls below the seven-day, two-year low-flow, whichever is larger. For purposes of the permitting process, the regulatory low flow shall be the larger of one (1) cubic foot per second or the seven-day, two-year low flow; and

(II) To streams listed as ephemeral in Appendix A.

(ii) Equations are presented in Table 2 of Appendix G for those substances whose toxicity varies with water chemistry. Metals listed in Table 2 of Appendix G are measured as total metals in the water column.

(H) For purposes of determining permit conditions, criteria for dissolved metals identified

in Table 3 of Appendix G of this Chapter may be ascertained and implemented as an alternative to the total recoverable metals criteria set forth in Table 2 of Appendix G. Such dissolved metals criteria apply to all waters of the state designated with any of the beneficial use sub-categories of Fish and Wildlife Propagation. Such dissolved metals criteria may be determined by multiplying the total recoverable numerical criteria in OAC 785:45 Appendix G, Table 2 by the conversion factors identified in Table 3 of Appendix G.

(7) Turbidity.

(A) Turbidity from other than natural sources shall be restricted to not exceed the following numerical limits:

- (i) Cool Water Aquatic Community/Trout Fisheries: 10 NTUs;
- (ii) Lakes: 25 NTUs; and
- (iii) Other surface waters: 50 NTUs.

(B) In waters where background turbidity exceeds these values, turbidity from point sources shall be restricted to not exceed ambient levels.

(C) Numerical criteria listed in (A) of this paragraph apply only to seasonal base flow conditions.

(D) Elevated turbidity levels may be expected during, and for several days after, a runoff event.

[**Source:** Amended at 9 Ok Reg 1889, eff 5-26-92; Amended at 11 Ok Reg 2959, eff 6-13-94; Amended at 12 Ok Reg 3305, eff 7-27-95; Amended at 14 Ok Reg 2786, eff 7-1-97; Amended at 15 Ok Reg 2872, eff 7-1-98; Amended at 16 Ok Reg 3241-3247, eff 7-12-99; Amended at 17 Ok Reg 1724-1730, eff 7-1-00; Amended at 18 Ok Reg 3377, eff 8-13-01; Amended at 19 Ok Reg 2511, eff 7-1-2002]

785:45-5-13. Agriculture: livestock and irrigation

(a) The surface waters of the State shall be maintained so that toxicity does not inhibit continued ingestion by livestock or irrigation of crops.

(b) Highly saline water should be used with best management practices as outlined in "Diagnosis

and Reclamation of Saline Soils," United States Department of Agriculture Handbook No. 60 (1958).

(c) Guidelines for suitability of water quality for livestock and irrigation purposes are provided in Appendix C of this Chapter.

(d) For chlorides, sulfates and total dissolved solids at 180°C (see Standard Methods), the arithmetic mean of the concentration of the samples taken for a year in a particular segment shall not exceed the historical "yearly mean standard" determined from the table in Appendix F of this Chapter. For permitting purposes, the long term average concentration shall not exceed the yearly mean standard. Yearly mean standards shall be implemented by the permitting authority using long term average flows and complete mixing of effluent and receiving water. Furthermore, not more than one (1) in twenty (20) samples randomly collected at a site shall exceed the historical value of the "sample standard" calculated for that segment. For permitting purposes, the short term average concentration shall not exceed the sample standard. Sample standards shall be implemented by the permitting authority using short term average flows and complete mixing of effluent and receiving water.

(e) Increased mineralization from other elements such as calcium, magnesium, sodium and their associated anions shall be maintained at or below a level that will not restrict any beneficial use.

(f) The data from sampling stations in each segment are averaged, and the mean chloride, sulfate, and total dissolved solids at 180°C are presented in Appendix F of this Chapter. Segment averages shall be used unless more appropriate data are available.

(g) The table in Appendix F of this Chapter contains statistical values from historical water quality data of mineral constituents. In cases where mineral content varies within a segment, the most pertinent data available should be used.

(h) For permitting purposes, long term average mineral constituent concentrations to protect the Agricultural beneficial use shall not be required to be less than 700 mg/L for TDS, and 250 mg/L

for chlorides and sulfates. These criteria shall be applied in the mixing zone.

[Source: Amended at 9 Ok Reg 1889, eff 5-26-92; Amended at 12 Ok Reg 3305, eff 7-27-95; Amended at 14 Ok Reg 2786, eff 7-1-97; Amended at 15 Ok Reg 2872, eff 7-1-98; Amended at 19 Ok Reg 2511, eff 7-1-2002]

785:45-5-14. Hydroelectric power generation

This beneficial use is not generally dependent upon water quality.

785:45-5-15. Industrial and municipal process and cooling water

(a) Quality criteria for water used for process or cooling purposes vary with the type of industrial or municipal processes involved.

(b) This use will be protected by application of the criteria for other beneficial uses.

785:45-5-16. Primary Body Contact Recreation

(a) Primary Body Contact Recreation involves direct body contact with the water where a possibility of ingestion exists. In these cases the water shall not contain chemical, physical or biological substances in concentrations that are irritating to skin or sense organs or are toxic or cause illness upon ingestion by human beings.

(b) In waters designated for Primary Body Contact Recreation the following limits for bacteria set forth in (c) of this section shall apply only during the recreation period of May 1 to September 30. The criteria for Secondary Body Contact Recreation will apply during the remainder of the year.

(c) Compliance with 785:45-5-16 shall be based upon meeting the requirements of one of the three (3) options specified below for bacteria. Upon selection of one (1) group or test method, said method shall be used exclusively over that thirty (30) day period.

(1) Coliform Bacteria: The bacteria of the fecal coliform group shall not exceed a monthly geometric mean of 200/100 ml, as determined by multiple-tube fermentation or membrane filter procedures based on a minimum of not less than five (5) samples collected over a period of not more than thirty (30) days. Further, in no more than

10% of the total samples during any thirty (30) day period shall the bacteria of the fecal coliform group exceed 400/100 ml.

(2) Escherichia coli (E. coli): E. coli shall not exceed a monthly geometric mean of 126/100 ml based upon a minimum of not less than five (5) samples collected over a period of not more than thirty (30) days. No sample shall exceed a 75% one-sided confidence level of 235/100 ml in lakes and high use waterbodies and the 90% one-sided confidence level of 406/100 ml in all other Primary Body Contact Recreation beneficial use areas. These values are based upon all collected samples. Analysis procedures shall follow EPA-600/4-85/076, "Test Methods for Escherichia coli and Enterococci in Water by the Membrane Filter Procedure."

(3) Enterococci: Enterococci shall not exceed a monthly geometric mean of 33/100 ml based upon a minimum of not less than five (5) samples collected over a period of not more than thirty (30) days. No sample shall exceed a 75% one-sided confidence level of 61/100 ml in lakes and high use waterbodies and the 90% one-sided confidence level of 108/100 ml in all other Primary Body Contact Recreation beneficial use areas. These values are based upon all collected samples. Analysis procedures shall follow EPA-600/4-85/076, "Test Methods for Escherichia coli and Enterococci in Water by the Membrane Filter Procedure."

[Source: Amended at 9 Ok Reg 1889, eff 5-26-92; Amended at 19 Ok Reg 2511, eff 7-1-2002]

785:45-5-17. Secondary Body Contact Recreation

(a) The water quality requirements for Secondary Body Contact Recreation are usually not as stringent as for Primary Body Contact Recreation.

(b) The Secondary Body Contact Recreation beneficial use is designated where ingestion of water is not anticipated.

(c) Associated activities may include boating, fishing or wading.

(d) Waters so designated shall be maintained to be free from human pathogens in numbers which may produce adverse health effect in humans.

785:45-5-18. Navigation

This beneficial use is generally more dependent upon quantity than quality of water.

785:45-5-19. Aesthetics

(a) To be aesthetically enjoyable, the surface waters of the state must be free from floating materials and suspended substances that produce objectionable color and turbidity.

(b) The water must also be free from noxious odors and tastes, from materials that settle to form objectionable deposits, and discharges that produce undesirable effects or is a nuisance to aquatic life.

(c) The following criteria apply to protect this use:

(1) **Color.** Surface waters of the state shall be virtually free from all coloring materials which produce an aesthetically unpleasant appearance. Color producing substances, from other than natural sources, shall be limited to concentrations equivalent to 70 Platinum-cobalt true color units.

(2) **Nutrients.**

(A) **Narrative criterion applicable to all waters of the state.** Nutrients from point source discharges or other sources shall not cause excessive growth of periphyton, phytoplankton, or aquatic macrophyte communities which impairs any existing or designated beneficial use.

(B) **Numerical criterion applicable to waters designated Scenic Rivers.** The thirty (30) day geometric mean total phosphorus concentration in waters designated "Scenic River" in Appendix A of this Chapter shall not exceed 0.037 mg/L. The criterion stated in this subparagraph (B) applies in addition to, and shall be construed so as to be consistent with, any other provision of this Chapter which may be applicable to such waters, and such criterion shall be fully implemented within ten (10) years

as provided in a separate rule promulgated by the Board.

(3) **Solids (suspended and/or settleable).**

The surface waters of the state shall be maintained so as to be essentially free of floating debris, bottom deposits, scum, foam and other materials, including suspended substances of a persistent nature, from other than natural sources.

(4) **Taste and Odor.** Taste and odor producing substances from other than natural origin shall be limited to concentrations that will not interfere with the production of a potable water supply by modern treatment methods or produce abnormal flavors, colors, tastes and odors in fish flesh or other edible wildlife, or result in offensive odors in the vicinity of the water, or otherwise interfere with beneficial uses.

[Source: Amended at 9 Ok Reg 1889, eff 5-26-92; Amended at 14 Ok Reg 2786, eff 7-1-97; Amended at 19 Ok Reg 2511, eff 7-1-2002]

785:45-5-20. Fish consumption

(a) **General.** The surface waters of the state shall be maintained so that toxicity does not inhibit ingestion of fish and shellfish by humans. The numerical criteria and values for substances listed in (c) of this Section and the column "Fish Consumption" in Table 2 of Appendix G of this Chapter shall apply to surface water designated as Warm Water Aquatic Community, Cool Water Aquatic Community, or Trout Fishery.

(b) **Water column criteria to protect for the consumption of fish flesh.** The water column numerical criteria (total recoverable) identified in the "Fish Consumption" column in Table 2 of Appendix G protect human health for the consumption of fish, shellfish and aquatic life. Water column numerical criteria to protect human health for human consumption of fish flesh are considered long term average standards. For purposes of permitting discharges for attainment of these standards, the permitting authority shall use long term average receiving stream flows and complete mixing of effluent and receiving water to determine appropriate permit limits.

(c) **Fish tissue levels.**

(1) Surface waters of the state shall be maintained to prevent bio-concentration of toxic substances in fish, shellfish, or other aquatic organisms.

(2) Concentrations of substances in fish tissue in excess of the screening and consumption advisory values listed in this paragraph shall be cause for appropriate regulatory action.

(A) Aldrin:

- (i) Screening value - 0.006 mg/kg
- (ii) Limited consumption advisory - 0.006 mg/kg
- (iii) Consumption prohibition advisory - 0.006 mg/kg

(B) Chlordane:

- (i) Screening value - 0.225 mg/kg
- (ii) Limited consumption advisory - 0.300 mg/kg
- (iii) Consumption prohibition advisory - 0.500 mg/kg

(C) DDT:

- (i) Screening value - 2.250 mg/kg
- (ii) Limited consumption advisory - 3.000 mg/kg
- (iii) Consumption prohibition advisory - 5.000 mg/kg

(D) Dieldrin:

- (i) Screening value - 0.012 mg/kg
- (ii) Limited consumption advisory - 0.012 mg/kg
- (iii) Consumption prohibition advisory - 0.012 mg/kg

(E) Endrin:

- (i) Screening value - 1.500 mg/kg
- (ii) Limited consumption advisory - 2.000 mg/kg
- (iii) Consumption prohibition advisory - 2.000 mg/kg

(F) Heptachlor:

- (i) Screening value - 0.150 mg/kg
- (ii) Limited consumption advisory - 0.200 mg/kg
- (iii) Consumption prohibition advisory - 0.300 mg/kg

(G) Mercury:

- (i) Screening value - 0.750 mg/kg
- (ii) Limited consumption advisory - 1.000 mg/kg

- (iii) Consumption prohibition advisory - 1.500 mg/kg

(H) PCBs:

- (i) Screening value - 0.750 mg/kg
- (ii) Limited consumption advisory - 1.000 mg/kg
- (iii) Consumption prohibition advisory - 2.000 mg/kg

(I) Toxaphene:

- (i) Screening value - 3.750 mg/kg
- (ii) Limited consumption advisory - 5.000 mg/kg
- (iii) Consumption prohibition advisory - 8.000 mg/kg

[Source: Added at 17 Ok Reg 1730-1731, eff 7-1-00; Amended at 18 Ok Reg 3377, eff 8-13-01; Amended at 19 Ok Reg 2511, eff 7-1-2002]

PART 5. SPECIAL PROVISIONS

785:45-5-25. Implementation Policies for the Antidegradation Policy Statement

(a) The following provisions set forth exceptions to the limitations stated in 785:45-5-25(c) for additional protection of certain waters of the state:

(1) The limitations contained in 785:45-5-25(c)(1) for additional protection of Outstanding Resource Waters shall apply to all discharges from point sources except such limitations do not apply to discharges of stormwater from temporary construction activities. Discharges of stormwater from point sources existing as of June 25, 1992, whether or not such stormwater discharges were permitted as point sources prior to June 25, 1992, are also excepted from the 785:45-5-25(c)(1) rule prohibiting any new point source discharges, but such stormwater discharges are prohibited from increased load of any pollutant.

(2) The limitations for additional protection of Appendix B Waters (785:45-5-25(c)(2)), High Quality Waters (785:45-5-25(c)(3)), and Sensitive Public and Private Water Supplies (785:45-5-25(c)(4)), shall apply to discharges from all point sources except point source discharges of stormwater.

(b) For purposes of 785:45-5-25, the term "specified pollutants" means:

- (1) Oxygen demanding substances, measured as Carbonaceous Biochemical Oxygen Demand (CBOD) and/or Biochemical Oxygen Demand (BOD);
 - (2) Ammonia Nitrogen and/or Total Organic Nitrogen;
 - (3) Phosphorus;
 - (4) Total Suspended Solids (TSS);
 - (5) Such other substances as may be determined by the Oklahoma Water Resources Board.
- (c) The following limitations for additional protection apply to various waters of the state:
- (1) **Outstanding Resource Waters (ORW).**
 - (A) Outstanding Resource Waters (ORW) are those waters of the state which constitute outstanding resources or are of exceptional recreational and/or ecological significance as described in 785:45-3-2(a), Anti-Degradation Policy Statement.
 - (B) The following waterbodies are prohibited from having any new point source discharge(s) of any pollutant or increased load of any pollutant from existing point source discharge(s):
 - (i) Waterbodies designated "ORW" and/or "Scenic River" in Appendix A of this Chapter;
 - (ii) Waterbodies located within the watersheds of waterbodies designated "Scenic River" in Appendix A of this Chapter ; and
 - (iii) Waterbodies located within the boundaries of Appendix B areas which are specifically designated "ORW" in Appendix A of this Chapter.
 - (2) **Appendix B Waters.**
 - (A) Appendix B waters are those waters of the state which are located within the boundaries of areas listed in Appendix B of this Chapter, including but not limited to the National and State parks, forests, wilderness areas, wildlife management areas, and wildlife refuges. Appendix B also may include those areas which are

inhabited by federally listed, threatened or endangered species, and other appropriate areas.

(B) Only those Appendix B waters specifically designated "ORW" in Appendix A of this Chapter shall be afforded the limitations for additional protection described in 785:45-5-25(c)(1)(B).

(C) New discharges or increased loading from existing discharges to Appendix B waters may be allowed under such conditions that ensure that the recreational and ecological significance of these waters will be maintained.

(D) Discharges or other activities associated with those waters listed in Appendix B, Table 2 containing Federally listed threatened or endangered species may be restricted through agreements between appropriate regulatory agencies and the United States Fish and Wildlife Service.

(3) **High Quality Waters (HQW).**

(A) High Quality Waters (HQW) are those waters of the state which possess existing water quality which exceeds that necessary to support propagation of fishes, shellfishes, wildlife, and recreation as described in 785:45-3-2(b), Anti-Degradation Policy Statement, and are designated "HQW" waters in Appendix A of this Chapter.

(B) All waterbodies designated with the limitation indicated by the letters "HQW" in Appendix A are prohibited from having any new point source discharge(s) of any pollutant or increased load or concentration of specified pollutants from existing point source discharge(s), provided however that new point source discharge(s) or increased load of specified pollutants described in 785:45-5-25(b) may be approved by the permitting authority in those circumstances where the discharger

demonstrates to the satisfaction of the permitting authority that the a new point source discharge or increased load from an existing point source discharge will result in maintaining or improving the level of water quality which exceeds that necessary to support recreation and propagation of fishes, shellfishes, and wildlife of the direct receiving water and downstream waterbodies designated HQW. As specified in 785:45-3-2(b) and (d), no discharge of any pollutant to a water designated HQW may lower existing water quality.

(4) Sensitive Public and Private Water Supplies (SWS).

(A) Waters designated "SWS" are those waters of the state which constitute sensitive public and private water supplies and are listed in Appendix A of this Chapter as "SWS" waters.

(B) New point source discharges of any pollutant after June 11, 1989, and increased load of any specified pollutant from any point source discharge existing as of June 11, 1989, shall be prohibited in any waterbody or watershed designated in Appendix A of this Chapter with the limitation "SWS". Any discharge of any pollutant to a waterbody designated "SWS" which would, if it occurred, lower existing water quality shall be prohibited, provided however that new point source discharge(s) or increased load of specified pollutants described in 785:45-5-25(b) may be approved by the permitting authority in those circumstances where the discharger demonstrates to the satisfaction of the permitting authority that a new point source discharge or increased load from an existing point source discharge will result in maintaining or improving the water quality of both the direct receiving water and any downstream waterbodies designated SWS.

(5) **Prioritization of Limitations.** In situations where more than one beneficial use limitation exists for a waterbody, the more stringent limitation shall apply.

(6) **Non-Point Source Discharges or Runoff.** Best management practices for control of non-point source discharges or runoff should be implemented in watersheds of waterbodies designated "ORW", "HQW", or "SWS" in Appendix A of this Chapter and/or located within areas listed in Appendix B provided however that development of conservation plans shall be required in sub-watersheds where discharges or runoff from non-point sources are identified as causing, or significantly contributing to, degradation in a waterbody designated "ORW".

(7) Culturally Significant Waters (CSW).

(A) Waters designated as CSW in Appendix A of this Chapter are those identified by recognized Tribal authorities as critical to maintaining the waters' utility for cultural, historic, recreational or ceremonial uses and which may require more stringent protection measures to protect human health or aquatic life or both.

(B) All activities associated with a CSW may require consultation with the duly authorized Tribal authority to assure that the proposed activity is consistent with applicable Tribal environmental laws.

(d) The thirty (30) day geometric mean total phosphorus concentration in waters designated "Scenic River" in Appendix A of this Chapter shall not exceed 0.037 mg/L. This subsection (d) applies in addition to, and shall be construed so as to be consistent with, any other provision of this Chapter which may be applicable to such waters, and such criterion shall be fully implemented within ten (10) years as provided in a separate rule promulgated by the Board.

[Source: Amended at 9 Ok Reg 2625, eff 6-25-92; Amended at 12 Ok Reg 3305, eff 7-27-95; Amended at 16 Ok Reg 3247-3248, eff 7-12-99; Amended at 18 Ok Reg 3377, eff 8-13-01; Amended at 19 Ok Reg 2511, eff 7-1-2002]

785:45-5-26. Mixing zones and zones of passage**(a) Mixing zones.**

(1) In streams, the chronic regulatory mixing zone extends downstream a distance equivalent to thirteen (13) times the width of the water within the receiving stream at the point of effluent discharge and encompasses 25% of the total stream flow of the 7Q2 or 1 cfs, whichever is larger, immediately downstream of the point of effluent discharge.

(2) The acute regulatory mixing zone is encompassed by the $R = 0.01 \text{ (cfs}^{-1}\text{)}$ isopleth. R is the ratio of concentration to wasteload.

(3) Acute toxicity within the mixing zone is prohibited.

(4) Mixing zones in lakes shall be designated on a case-by-case basis.

(5) The water quality in a portion of the mixing zone may be unsuitable for certain beneficial uses.

(6) Where overlapping mixing zones occur because of multiple outfalls, the total length of the chronic regulatory mixing zone will extend thirteen (13) stream widths downstream from the downstream discharge point.

(b) Zones of passage.

(1) All discharges permitted for any criteria listed for protection of fish and wildlife propagation shall be regulated to insure that a zone of passage shall be maintained within the stream at the outfall and adjacent to the mixing zone that shall be no less than seventy-five percent (75%) of the volume of flow.

(2) Water quality standards shall be maintained throughout the zone of passage.

(3) Zones of passage in lakes shall be designated on a case-by-case basis.

[Source: Amended at 9 Ok Reg 1889, eff 5-26-92; Amended at 16 Ok Reg 3248, eff 7-12-99; Amended at 18 Ok Reg 3377, eff 8-13-01]

785:45-5-27. Site Specific Criteria (Revoked).

[Source: Revoked at 9 Ok Reg 1889, eff 5-26-92]

SUBCHAPTER 7. GROUNDWATER QUALITY STANDARDS**Section**

785:45-7-1. Scope and applicability; purpose

785:45-7-2. Criteria for groundwater protection and corrective actions

785:45-7-3. Beneficial use designations for groundwater basins

785:45-7-1. Scope and applicability; purpose

(a) The provisions of this Subchapter apply only to fresh groundwater.

(b) The purposes of the rules in this Subchapter are to protect beneficial uses and classifications of groundwater, to assure that degradation of the existing quality of groundwater does not occur, and to provide minimum standards for remediation when groundwater becomes polluted by humans.

[Source: Amended at 9 Ok Reg 1889, eff 5-26-92; Amended at 17 Ok Reg 2766, eff 7-1-00]

785:45-7-2. Criteria for groundwater protection and corrective actions**(a) Criteria for protection of groundwater quality.**

(1) The groundwaters of the state shall be maintained to prevent alteration of their chemical properties by harmful substances not naturally found in groundwater.

(2) Protective measures adequate to preserve and protect background quality of the groundwater and existing and designated groundwater basin classifications shall be maintained at all times. Protective measures shall also be sufficient to minimize the impact of pollutants on groundwater quality. The concentration of any synthetic substance or any substance not naturally occurring in that location shall not exceed the PQL in an unpolluted groundwater sample using laboratory technology. If the concentration found in the test sample exceeds the PQL, or if other substances in the groundwater

are found in concentrations greater than those found in background conditions, that groundwater shall be deemed to be polluted and corrective action may be required.

(3) Measures to prevent noncompliance with this Section caused by any person shall be the responsibility of each state environmental agency within their jurisdictional areas of environmental responsibility. Such measures shall be prescribed in the Water Quality Standards Implementation Plan of each such agency. When regulating activities that have the potential to contaminate groundwater from the surface, state environmental agencies shall consider the vulnerability level of an affected hydrogeologic basin (for example, more stringent measures such as siting limitations, lagoon liners, or additional monitoring wells may be required to protect groundwater in hydrogeologic basins with High or Very High vulnerability levels).

(b) **Criteria for corrective action.**

(1) Groundwater that has been polluted as a result of human activities shall be restored to a quality that will support the beneficial uses designated in OAC 785:45-7-3 for that groundwater, or as otherwise specified in a site-specific remediation plan approved by an agency of competent jurisdiction.

(2) Measures to remedy, control or abate groundwater pollution caused by any person shall be the responsibility of each state environmental agency within its jurisdictional areas of environmental responsibility. Such measures shall be taken as prescribed in the agency's Water Quality Standards Implementation Plan.

[Source: Amended at 9 Ok Reg 1889, eff 5-26-92; Amended at 17 Ok Reg 2766-2767, eff 7-1-00; Amended at 19 Ok Reg 2511, eff 7-1-2002]

785:45-7-3. Groundwater classifications, beneficial uses and vulnerability levels

(a) **Classifications.** Classification of all groundwater shall be designated as follows:

(1) **Class I (Special Source Groundwater):** Special source

groundwaters are defined as groundwaters where exceptional water quality exists, where there is an irreplaceable source of water, where it is necessary to maintain an outstanding resource or where the groundwater is ecologically important. Special source groundwaters are considered to be very vulnerable to contamination. This classification shall include:

(A) All groundwater located underneath the watersheds of waterbodies designated "Scenic River" in Appendix A of this Chapter;

(B) Special source groundwater located underneath lands located within the boundaries of the areas described in Appendix B of this Chapter; and

(C) All groundwater located underneath lands located within the boundaries of a State approved wellhead or source water protection area for public water supply.

(2) **Class II (General Use Groundwater):**

These are groundwaters capable of being used as a drinking water supply with no treatment or with conventional treatment methods, which have the potential to be used for other beneficial uses and which have a mean concentration of Total Dissolved Solids of less than 3,000 milligrams per liter.

(3) **Class III (Limited Use Groundwater):**

These are groundwaters which have poor quality due to natural conditions, which could require extensive treatment for use as a source of drinking water, and which have a mean concentration of Total Dissolved Solids of greater than or equal to 3000 milligrams per liter but less than 5000 milligrams per liter.

(4) **Class IV (Highly Mineralized Treatable Groundwater):**

These are groundwaters which have very poor quality due to natural conditions, which would require extensive treatment for use as a source of drinking water, and which have a mean concentration of Total Dissolved Solids of greater than or equal to 5000 milligrams per liter but less than 10,000 milligrams per liter.

(b) **Beneficial uses.** This subsection lists the various beneficial uses of groundwater and designates certain beneficial uses for certain classifications of groundwater.

(1) **List of beneficial uses for groundwater.**

(A) **Public and Private Water Supply.**

The beneficial use designation of Public and Private Water Supply refers to those groundwaters capable of delivering suitable quantities of fresh groundwater for municipal or domestic consumption whether or not treatment is required.

(B) **Agriculture.** The beneficial use designation of Agriculture refers to that groundwater which is or could be used for irrigation or livestock watering.

(C) **Industrial and Municipal Process and Cooling Water.** The beneficial use designation of Industrial and Municipal Process and Cooling Water refers to that groundwater that is or could be used for a municipal or industrial process or cooling function.

(2) **Beneficial use designations.**

(A) The beneficial uses for Class I and Class II groundwater not identified in Appendix H of this Chapter shall be Public and Private Water Supply, Agriculture, and Industrial and Municipal Process and Cooling Water.

(B) The beneficial uses for Class III and Class IV groundwater not identified in Appendix H of this Chapter shall be Agriculture and Industrial and Municipal Process and Cooling Water.

(C) The beneficial uses for any groundwater identified in Appendix H of this Chapter shall be as designated in that appendix.

(D) The beneficial use for groundwater which is used for domestic purposes on or after July 1, 2000, has a mean concentration of Total Dissolved Solids of less than 3000 milligrams per liter, and has not been determined by any state environmental agency to be not suitable for human consumption, shall be Public and Private Water Supply.

(E) A beneficial use designation for groundwater may be amended or removed only after a demonstration to the satisfaction of the Board that meets one of the following tests:

(i) The designated use does not exist due to a condition that was not caused by humans, and treatment using Best Available Technology will not achieve the designated use, or

(ii) The designated use does not exist due to a condition that is attributable to irreversible impacts caused by humans, and the remedy would cause substantial and widespread economic and social impact.

(F) Groundwater which has had a beneficial use designation amended or removed pursuant to (E) of this paragraph shall be identified in Appendix H of this Chapter.

(c) **Vulnerability level.** Groundwater in certain hydrogeologic basins is further classified according to its vulnerability to contamination as determined by DRASTIC. Such vulnerability levels of hydrogeologic basins shall be identified as Very Low, Low, Moderate, High, and Very High as prescribed in Table 1 of Appendix D of this Chapter. The vulnerability level may vary within each hydrogeologic basin, depending on site-specific hydrogeologic factors.

(d) **Nutrient-vulnerable groundwater.** Certain specified groundwaters shall be further subject to designation in Table 2 of Appendix D of this Chapter as nutrient-vulnerable groundwater.

[Source: Amended at 9 Ok Reg 1889, eff 5-26-92; Amended at 16 Ok Reg 3248-3249, eff 7-12-99; Amended at 17 Ok Reg 2769-2771, eff 7-1-00; Amended at 19 Ok Reg 2511, eff 7-1-2002]

APPENDIX A. DESIGNATED BENEFICIAL USES FOR SURFACE WATERS

(a) **Introduction.** The Tables that follow in this Appendix identify certain waterbodies throughout the state of Oklahoma and designate beneficial uses for those waterbodies. The waterbodies are identified by their name (e.g., "Horse Creek") or other description (e.g., "Tributary of Lebos Creek at Sec. 2, T2N, R 26W, IM", "Red River from the Arkansas State Line to the Kiamichi River") and a "WQM Segment" number. The WQM Segment number refers to one of the 59 water quality management segments in the 7 planning basins which correspond to the 7 Tables that follow. The segment numbers are assigned according to an Oklahoma Water Resources Board publication completed pursuant to a Clean Water Act Section 208 authorization during FY84. The first digit of the WQM Segment number indicates the basin number; the next three digits indicate the major drainage segment within that basin; and the last two digits indicate the subdivision of the major drainage segment. The Tables also set forth columns to show the beneficial uses or subcategories of uses which are designated for each identified waterbody.

(b) **Beneficial Use designations.** Designations of beneficial uses for a waterbody are reflected in the Tables by the presence of the following codes or a dot ("•") in the columns to the right of the waterbody name. An empty space in a column means that column's beneficial use or subcategory thereof is not designated for that waterbody.

- (1) EWS - Emergency Water Supply beneficial use
- (2) PPWS - Public and Private Water Supply beneficial use
- (3) F&W Prop. - Fish and Wildlife Propagation beneficial use
 - (A) WWAC - Warm Water Aquatic Community subcategory
 - (B) HLAC - Habitat Limited Aquatic Community subcategory
 - (C) CWAC - Cool Water Aquatic Community subcategory
 - (D) Trout - Trout Fishery (put and take) subcategory
- (4) Ag - Agriculture beneficial use
 - (A) 1 - Class I Irrigation
 - (B) 2 - Class II Irrigation
 - (C) 3 - Class III Irrigation
- (5) HP - Hydropower beneficial use
- (6) M&I - Industrial and Municipal process and cooling water
- (7) Rec - Recreation beneficial use
 - (A) PBCR - Primary Body Contact beneficial use
 - (B) SBCR - Secondary Body Contact beneficial use
- (8) Nav - Navigation beneficial use
- (9) Aes - Aesthetics beneficial use

(10) A dot ("•") used in a column indicates that the beneficial use in that column's heading is designated for that waterbody without a more specific subcategory or other designation.

The criteria to protect the beneficial uses are provided in Subchapter 5 and Appendix G of this Chapter.

(c) **Limitations for Additional Protection.**

- (1) Limitations for additional protection are described in 785:45-5-25.
- (2) Waterbodies that are subject to limitations for additional protection in 785:45-5-25 are identified by the designation of any of the following codes in the "Limitations" column to the right of the waterbody's name:
 - (A) "ORW" - indicates waters designated Outstanding Resource Waters;
 - (B) "HQW" - indicates waters designated High Quality Waters; and
 - (C) "SWS" - indicates waters designated Sensitive Public and Private Water Supplies.

(d) **Remarks used in Appendix A.** The presence of any of the following footnotes in the "Remarks" column to the right of a waterbody's name denotes special circumstances which are applicable to that waterbody.

- (1) A footnote (1) designates those streams for which further investigations are pending. Beneficial use designations for those streams are provided in Subchapter 5 of this Chapter.
- (2) A footnote (2) indicates that criteria for the beneficial use of Primary Body Contact Recreation apply regardless of the recreation use designated.
- (3) A footnote (3) excludes the Scenic River designation from that portion of Lee Creek necessary for a dam to be built in the State of Arkansas with a crest elevation of no more than the 420 foot MSL elevation according to plans, specifications and conditions contained in U.S. Army Corps of Engineer Permit WD-050-03-3541 and in the Federal Energy Regulatory Commission License for Project No. 5251-002, which were approved by the U.S. Environmental Protection Agency. Changes in water quality caused by the impoundment of water by said dam shall not constitute a violation of Oklahoma's Water Quality Standards.

- (4) The remark "CSW" designates those waters identified as Culturally Significant Waters.
- (5) The remark "NLW" designates a nutrient-limited watershed.

TABLE 1.

**Designated Beneficial Uses of Surface Waters
Water Quality Management Basin 1, Middle Arkansas River**

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Arkansas River from mouth of Canadian River to the mouth of the Verdigris River including Webbers Falls Reservoir	121400	EWS	WWAC	•	•	•	PBCR	•	•		
Dirty Creek	120400	PPWS	WWAC	•		•	PBCR		•		
Tributary of Dirty Creek at SW 1/4, Sec. 31, T12N, R21E, IM	120400		HLAC	•		•	SBCR		•		
South Fork of Dirty Creek	120400		WWAC	•		•	PBCR		•		
Tributary of the South Fork of Dirty Creek at SW SE SE, Sec. 2, T10N, R19E, IM	120400		HLAC	•		•	SBCR		•		
Georges Fork	120400	EWS	WWAC	•		•	PBCR		•		
Tributary of Georges Fork at SE 1/4, Sec. 35, T12N, R19E, IM	120400	EWS	HLAC	•		•	SBCR		•		
Tributary of the South Fork of Dirty Creek at SE 1/4, Sec. 1, T12N, R18E, IM	120400		WWAC	•		•	PBCR		•		
Lower Illinois River from headwater of Robert S. Kerr Reservoir to Tenkiller Dam	121700	PPWS	Trout	1		•	PBCR	•	•	HQW	
Upper Illinois River from Tenkiller Dam, including Tenkiller Reservoir upstream to Barren Fork confluence	121700	PPWS	CWAC	1	•	•	PBCR		•		
Caney Creek	121700	PPWS	CWAC	•			PBCR		•		
Park Hill Branch	121700		WWAC	•		•	PBCR		•		
Barren Fork from mouth upstream to Hwy. 59	121700	PPWS	CWAC	1			PBCR		•	ORW	Scenic River
Tyner Creek	121700	PPWS	CWAC	•			PBCR		•	ORW	
Dennison Hollow	121700	PPWS	CWAC	•			PBCR		•	ORW	

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Peach eater Creek	121700	PPWS	CWAC	•			PBCR		•	ORW	
Scraper Hollow	121700	PPWS	CWAC	•			PBCR		•	ORW	
England Hollow	121700	PPWS	CWAC	•			PBCR		•	ORW	
Green Creek	121700	PPWS	CWAC	•			PBCR		•	ORW	
Shell Branch	121700	PPWS	CWAC	•			PBCR		•	ORW	
Barren Fork from Hwy. 59 to Arkansas State Line	121700	PPWS	CWAC	1			PBCR		•	ORW	
Evansville Creek	121700	PPWS	CWAC	•			PBCR		•	ORW	
Upper Illinois River upstream of Barren Fork confluence	121700	PPWS	CWAC	1			PBCR		•	ORW	Scenic River
Tahlequah Creek	121700	PPWS	CWAC	•			PBCR		•	ORW	
Flint Creek	121700	PPWS	CWAC	•			PBCR		•	ORW	Scenic River
Sager Creek	121700	PPWS	CWAC	1			PBCR		•	ORW	
Ballard Creek	121700	PPWS	CWAC	•			PBCR		•	ORW	
Tributary of Arkansas River at Sec. 7, T12N, R21E, IM	120400		WWAC	•		•	PBCR		•		
Greenleaf Creek including Greenleaf Lake and Watershed	120400	PPWS	WWAC	•		•	PBCR		•	SWS	
Star Lake	120400		WWAC	•		•	PBCR		•		
Sand Creek	120400		HLAC	•		•	SBCR		•		
Bayou Manard	120400	PPWS	WWAC	•		•	PBCR		•		
Coody Creek	120400	PPWS	WWAC	•		•	PBCR		•		
Grand River Main Stem (Grand Neosho River) from mouth to Kansas State Line, including Fort Gibson Reservoir, Lake Hudson, and (Grand) Lake O' the Cherokees	121600	PPWS	WWAC	1	•	•	PBCR		•		
Ranger Creek	121600	PPWS	WWAC	•		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Fourteen Mile Creek	121600	PPWS	CWAC	•		•	PBCR		•	HQW	
Black Bird Creek	121600	PPWS	CWAC	•		•	PBCR		•		
Clear Creek	121600	PPWS	CWAC	•		•	PBCR		•		
Spring Creek	121600	PPWS	CWAC	•		•	PBCR		•	HQW	
Little Spring Creek	121600	PPWS	CWAC	•		•	PBCR		•	HQW	
Double Spring Creek	121600	PPWS	CWAC	•		•	PBCR		•		
Chouteau Creek	121600	PPWS	WWAC	•		•	PBCR		•		
Tributary of Chouteau Creek at SE 1/4, Sec.13, T20N, R18E, IM	121600		WWAC	•		•	SBCR		•		
Tributary of Chouteau Creek at SE 1/4, Sec. 29, T20N, R19E, IM	121600		HLAC	•		•	SBCR		•		
Pryor Creek downstream from the road crossing in Sec. 30, T21N, R19E, IM	121610		WWAC	1		•	PBCR		•		
Pryor Creek upstream from the road crossing in Sec. 30, T21N, R19E, IM to the road crossing in Sec. 12, T21N, R18E, IM	121610	PPWS	WWAC	1		•	PBCR		•		
Pryor Creek upstream from the road crossing in Sec. 12, T21N, R18E, IM	121610		WWAC	1		•	SBCR		•		
Crutchfield Branch	121600		WWAC	•		•	PBCR		•		
Saline Creek	121600	PPWS	CWAC	•		•	PBCR		•		
Little Saline Creek	121600	PPWS	CWAC	•		•	PBCR		•		
Horse Creek	121600	EWS	WWAC	•		•	PBCR		•		
Spavinaw Creek below Spavinaw Lake dam	121600	PPWS	CWAC	1			PBCR		•		
Spavinaw Lake and watershed upstream of Spavinaw Lake dam	121600	PPWS	CWAC	1			PBCR		•	SWS	NLW

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Eucha Lake and watershed	121600	PPWS	CWAC	1			PBCR		•	SWS	NLW
Brush Creek	121600	PPWS	CWAC	•			PBCR		•	HQW	
Beaty Creek	121600	PPWS	CWAC	•			PBCR		•	HQW	
Rock Creek	121600	PPWS	WWAC	•		•	PBCR		•		
Big Cabin Creek downstream from the road crossing in Sec. 10, T24N, R20E, IM	121600	PPWS	WWAC	1		•	PBCR		•		
Mustang Creek	121600		WWAC	•		•	PBCR		•		
Big Cabin Creek upstream from the road crossing in Sec. 10, T24N, R20E, IM to the road crossing in Sec. 8, T26N, R20E, IM	121600		WWAC	1		•	SBCR		•		
Little Cabin Creek	121600		WWAC	•		•	PBCR		•		
Big Cabin Creek upstream from the road crossing in Sec. 8, T26N, R20E, IM	121600		WWAC	1		•	PBCR		•		
Drowning Creek	121600	PPWS	CWAC	•		•	PBCR		•		
Tributary of Muskrat Creek in Sec.36, T23N, R 23E, IM	121600		HLAC	•		•	SBCR		•		
Honey Creek	121600	PPWS	CWAC	•			PBCR		•	HQW	
Elm Creek	121600	PPWS	CWAC	•		•	PBCR		•		
Whitewater Creek	121600	PPWS	CWAC	•		•	PBCR		•		
Cave Springs Branch	121600	PPWS	CWAC	•			PBCR		•	HQW	
Elk River	121600	PPWS	CWAC	1		•	PBCR		•		
Hollow Creek	121600	PPWS	CWAC	•		•	PBCR		•		
Sycamore Creek	121600	PPWS	CWAC	•		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Brush Creek	121600	PPWS	CWAC	•		•	PBCR		•		
Lost Creek	121600	PPWS	CWAC	•		•	PBCR		•		
Spring River	121600	PPWS	CWAC	1		•	PBCR		•		
Shawnee Branch	121600	PPWS	CWAC	•		•	PBCR		•		
Flint Branch	121600	PPWS	CWAC	•		•	PBCR		•		
Warren Branch	121600	PPWS	CWAC	•		•	PBCR		•	HQW	
Devil's Hollow	121600	PPWS	CWAC	•		•	PBCR		•		
Five Mile Creek	121600	PPWS	CWAC	•		•	PBCR		•		
Hudson Creek	121600		WWAC	•		•	PBCR		•		
Tributary of Hudson Creek at SE 1/4, Sec. 30, T27N, R23E, IM	121600		HLAC	•		•	SBCR		•		
Tar Creek	121600		HLAC				SBCR				
Verdigris River from its mouth to Oolagah Reservoir Dam	121500	PPWS	WWAC	1	•	•	PBCR	•	•		
Tributary of Verdigris River at SW 1/4, Sec. 20, T16N, R19E, IM	121500		HLAC	•		•	SBCR		•		
Coal Creek (near Wagoner)	121500	PPWS	WWAC	•		•	PBCR		•		
Tributary of Verdigris River at SE 1/4, Sec. 34, T17N, R17E, IM	121500		HLAC	•		•	SBCR		•		
Coal Creek	121500	PPWS	WWAC	•		•	PBCR		•		
Inola Creek	121500		WWAC	•		•	PBCR		•		
Pea Creek	121500		WWAC	•		•	PBCR		•		
Adams Creek	121500	PPWS	WWAC	•		•	PBCR		•		
Salt Creek	121500		WWAC	•		•	SBCR		•		
Tributary of Salt Creek at NW 1/4, Sec. 1, T19N, R15E, IM	121500		HLAC	•		•	SBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Dog Creek downstream from Lake Claremore	121500	PPWS	WWAC	•		•	PBCR		•		
Cat Creek	121500	EWS	WWAC	•		•	PBCR		•		
Tributary of Cat Creek at NW 1/4, Sec. 21, T21N, R16E, IM	121500	EWS	HLAC	•		•	SBCR		•		
Lake Claremore and Watershed	121500	PPWS	WWAC	•		•	PBCR		•	SWS	NLW
Chambers Creek	121500	EWS	HLAC	•			SBCR		•		
Mossy Creek	121500	EWS	HLAC	•			SBCR		•		
Spunky Creek	121500		WWAC	•		•	PBCR		•		
Tributary of Spunky Creek at Sec. 6, T19N, R15E	121500		HLAC	•		•	SBCR		•		
Tributary of Verdigris River at Sec. 28, T20N, R15E, IM	121500		HLAC	•		•	SBCR		•		
Bird Creek	121300	PPWS	WWAC	1		•	PBCR		•		
Mingo Creek	121300	EWS	WWAC	•		•	PBCR		•		
Unnamed tributary of Mingo Creek	121300	EWS	HLAC	•		•	SBCR		•		
Owasso Creek	121300		HLAC	•		•	SBCR		•		
Tributary of Owasso Creek at SE1/4, Sec. 31, T21N, R14E, IM	121300		HLAC	•		•	SBCR		•		
Yahola Lake and Watershed	121300	PPWS	WWAC	1		•	PBCR		•	SWS	
Flat Rock Creek	121300		WWAC	•		•	SBCR		•		
Tributary of Flat Rock Creek at SE 1/4, Sec. 18, T20N, R13E, IM	121300		HLAC	•		•	SBCR		•		
Delaware Creek	121300	PPWS	WWAC	•		•	PBCR		•		
Hominy Creek downstream from Skiatook Reservoir	121300	PPWS	WWAC	2		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Hominy Creek upstream from and including Skiatook Reservoir	121300	PPWS	WWAC	2		•	PBCR		•	SWS	
Claremore Creek	121300	PPWS	WWAC	•		•	PBCR		•		
Hominy Municipal Lake and Watershed	121300	PPWS	WWAC	1		•	PBCR		•	SWS	
Candy Creek	121300	PPWS	WWAC	•		•	PBCR		•		
Pecan Hollow Creek	121300	PPWS	WWAC	•		•	PBCR		•	HQW	
Tributary of Bird Creek at Sec. 19, T24N, R11E, IM	121300		HLAC	•		•	SBCR		•		
Birch Creek downstream from Birch Reservoir	121300	PPWS	WWAC	•		•	PBCR		•		
Birch Reservoir and Watershed	121300	PPWS	WWAC	1		•	PBCR		•	SWS	
Tributary of Birch Creek at Sec. 14, T24N, R9E, IM	121300		HLAC	•		•	SBCR		•	SWS	
Bluestem Lake and Watershed	121300	PPWS	WWAC	1		•	PBCR		•	SWS	
Tributary of Verdigris River at Sec. 11, T21N, R15 E, IM	121500		HLAC	•		•	SBCR		•		
Caney River from the mouth to the Kansas State Line	121400	PPWS	WWAC	1		•	PBCR		•		
Hulah Reservoir and watershed	121400	PPWS	WWAC	1		•	PBCR		•		NLW
Rabb Creek	121400	PPWS	WWAC	•		•	PBCR		•		
Keeler Creek	121400		WWAC	•		•	PBCR		•		
Tributary of Keeler Creek at NW 1/4 Sec. 19, T25N, R13E, IM	121400		HLAC	•		•	SBCR		•		
Sand Creek	121400	PPWS	WWAC	1		•	PBCR		•		
Buck Creek	121400	PPWS	WWAC	•		•	PBCR		•		
Coon Creek	121400	PPWS	WWAC	•		•	PBCR		•		
Deer Creek	121400		WWAC	•		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Little Caney River including Copan Reservoir and Watershed	121400	PPWS	WWAC	1		•	PBCR		•	SWS	
Pond Creek	121400	PPWS	WWAC	•		•	PBCR		•		
Buck Creek	121400	PPWS	WWAC	•		•	PBCR		•		
Fourmile Creek	121500		WWAC	•		•	PBCR		•		
Verdigris River from and including Oologah Reservoir to the Kansas State Line	121510	PPWS	WWAC	1	•	•	PBCR	•	•		
Blue Creek	121510	PPWS	WWAC	•		•	PBCR		•		
Spencer Creek including Chelsea Reservoir and Watershed	121510	PPWS	WWAC	1		•	PBCR		•	SWS	
Lightning Creek	121510	PPWS	WWAC	•		•	PBCR		•		
Salt Creek	121510	PPWS	WWAC	•		•	PBCR		•		
Big Creek	121510	PPWS	WWAC	•		•	PBCR		•		
California Creek	121510	PPWS	WWAC	•		•	PBCR		•		
Unnamed tributary (return flow, City of Delaware)	121510	EWS	HLAC	•		•	SBCR		•		
Tributary to Oologah Reservoir NW 1/4, Sec. 5, T26N, R16E, IM	121510	EWS	HLAC	•		•	SBCR		•		
Snow Creek	121510	PPWS	WWAC	•		•	PBCR		•		
Onion Creek	121510	PPWS	WWAC	•		•	PBCR		•		
Arkansas River from mouth of Verdigris River to Keystone Dam	120410 & 120420	EWS	WWAC	•	•	•	SBCR	•	•		(2)
Pecan Creek	120410	PPWS	WWAC	•		•	PBCR		•		
Cloud Creek	120410	PPWS	WWAC	•		•	PBCR		•		
Ash Creek	120410	PPWS	WWAC	•		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Snake Creek	120410	PPWS	WWAC	•		•	PBCR		•		
Posey Creek	120420		WWAC	•		•	PBCR		•		
Polecat Creek downstream from Lake Heyburn	120420		WWAC	•		•	PBCR		•		
Coal Creek downstream from Sec. 35, T18N, R12E, IM	120420	PPWS	WWAC	1			PBCR		•		
Coal Creek upstream from Sec. 35, T18N, R12E, IM	120420	PPWS	HLAC	1			PBCR		•		
Rock Creek downstream from Sahoma Lake	120420		WWAC	•		•	PBCR		•		
Childress Creek	120420		HLAC	•		•	SBCR		•		
Little Polecat Creek	120420		WWAC	•		•	SBCR		•		
Sahoma Reservoir and Watershed	120420	PPWS	WWAC	1		•	PBCR		•	SWS	
Heyburn Lake and Watershed	120420	PPWS	WWAC	1		•	PBCR		•	SWS	
Shell Creek downstream from Shell Lake	120420	PPWS	WWAC	•		•	PBCR		•		
Shell Lake and Watershed	120420	PPWS	WWAC	1		•	PBCR		•	SWS	

TABLE 2.

**Designated Beneficial Uses of Surface Waters
Water Quality Management Basin 2, Lower Arkansas River Basin**

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Arkansas River from the Arkansas State Line to the mouth of the Canadian River including R.S. Kerr Reservoir	220200	PPWS	WWAC	1	•	•	PBCR	•	•		
Lee Creek downstream from the 420 ft. elevation level	220200	PPWS	CWAC	1			PBCR		•	HQW	HQW
Lee Creek upstream from the 420 ft. elevation level	220200	PPWS	CWAC	1			PBCR		•	ORW	Scenic River (3)
Webbers Creek	220200	PPWS	CWAC	•			PBCR		•	ORW	
Briar Creek (Bear Creek)	220200	PPWS	CWAC	•			PBCR		•	ORW	
Little Lee Creek	220200	PPWS	CWAC	1			PBCR		•	ORW	Scenic River
Jenkins Creek	220200	PPWS	CWAC	1			PBCR		•	ORW	
Poteau River downstream from Brazil Creek	220100	PPWS	WWAC	1		•	PBCR		•		
Tributary of Cedar Creek at Sec. 8, T9N, R27E, IM	220100		WWAC	•		•	PBCR		•		
Spiro Lake and Watershed	220100	PPWS	WWAC	•		•	PBCR		•	SWS	
James Fork	220100	PPWS	WWAC	•		•	PBCR		•		
Brazil Creek	220100	PPWS	WWAC	1		•	PBCR		•		
Poteau River upstream from Brazil Creek	220100	PPWS	WWAC	1		•	PBCR		•		
Wister Reservoir and watershed	220100	PPWS	WWAC	1		•	PBCR		•		NLW
Riddle Creek	220100		HLAC	•		•	SBCR		•		
Tributary of Riddle Creek at SE 1/4 Sec. 4, T07N, R26E, IM	220100		HLAC	•		•	SBCR		•		
Sugarloaf Creek	220100	PPWS	WWAC	1		•	PBCR		•		
Morris Creek	220100		WWAC	•		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Caston Creek	220100	PPWS	WWAC	1		•	PBCR		•		
Coal Creek	220100	EWS	WWAC	•		•	PBCR		•		
Fourche Maline Creek	220100	PPWS	WWAC	1		•	PBCR		•		
Little Fourche Maline Creek	220100	PPWS	WWAC	•		•	PBCR		•		
Bandy Creek	220100		WWAC	•		•	PBCR		•		
Tributary of Bandy Creek at NE 1/4, Sec. 17, T5N, R19E, IM	220100		WWAC	•		•	SBCR		•		
Wilburton City Lake and Watershed	220100	PPWS	WWAC	1		•	PBCR		•	SWS	
Tributary of Fourche Maline Creek at SE 1/4, Sec. 12, T5N, R19E, IM	220100		HLAC	•		•	SBCR		•		
Coon Creek Lake and Watershed	220100	PPWS	WWAC	1		•	PBCR		•	SWS	
Black Fork downstream from Cedar Creek	220100	PPWS	WWAC	•		•	PBCR		•		
Black Fork upstream from Cedar Creek	220100	PPWS	CWAC	•			PBCR		•	HQW	
Cedar Creek	220100	PPWS	WWAC	•			PBCR		•		
Big Creek	220100	PPWS	CWAC	•			PBCR		•		
Tributary of Big Creek at NE 1/4, Sec. 22, T3N, R26E, IM	220100	EWS	WWAC	•		•	PBCR		•		
Oil Branch	220100		WWAC	•		•	PBCR		•		
Camp Creek	220200	PPWS	CWAC	•			PBCR		•		
Big Skin Bayou Creek	220200	PPWS	WWAC	•		•	PBCR		•		
Cache Creek	220200	PPWS	WWAC	•		•	PBCR		•		
Onion Creek	220200		HLAC	•		•	SBCR		•		
Sans Bois Creek	220200	PPWS	WWAC	•		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
John Wells Reservoir and Watershed	220200	PPWS	WWAC	•		•	PBCR		•	SWS	
Beaver Creek	220200	EWS	WWAC	•		•	PBCR		•		
Sallisaw Creek downstream from U.S. Hwy. 64	220200	PPWS	CWAC	1		•	PBCR		•		
Shilo Branch	220200		WWAC	•		•	PBCR		•		
Tributary of Shilo Branch at SW 1/4, Sec. 1, T11N, R23E, IM	220200		HLAC	•		•	SBCR		•		
Little Sallisaw Creek (Cedar Creek)	220200	PPWS	WWAC	•		•	PBCR		•		
Sallisaw Creek upstream from U.S. Hwy 64	220200	PPWS	CWAC	1		•	PBCR		•	HQW	
Brushy Creek downstream from Brushy Lake	220200	PPWS	CWAC	•		•	PBCR		•		
Brushy Lake and Watershed	220200	PPWS	CWAC	•		•	PBCR		•	SWS	
Greasy Creek	220200	PPWS	CWAC	•		•	PBCR		•		
Vian Creek	220200	PPWS	CWAC	•		•	PBCR		•		
Little Vian Creek	220200	PPWS	CWAC	2		•	PBCR		•		
Canadian River from mouth to Eufaula Reservoir Dam	220300	PPWS	WWAC	1	•	•	PBCR	•	•		
Taloka Creek	220300	PPWS	WWAC	•		•	PBCR		•		
Snake Creek	220300		WWAC	•		•	SBCR		•		
Emachaya Creek	220300	PPWS	WWAC	1		•	PBCR		•		
Canadian River including Eufaula Reservoir (excluding the North Canadian River) to its confluence with Little River	220600	PPWS	WWAC	1		•	PBCR		•		
Mud Creek	220600	PPWS	WWAC	1		•	PBCR		•		
Longtown Creek	220600	PPWS	WWAC	•		•	PBCR		•		
Gibson Creek	220600		HLAC	•		•	SBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Tributary of Gibson Creek at NW NW Sec.18,T8N,R16E, IM	220600		HLAC	•		•	SBCR		•		
Gaines Creek	220600	PPWS	WWAC	•		•	PBCR		•		
Coal Creek	220600	PPWS	WWAC	•		•	PBCR		•		
McAlester Lake and Watershed	220600	PPWS	WWAC	1		•	PBCR		•	SWS	
Deer Creek	220600		WWAC	•		•	PBCR		•		
Sandy Creek	220600		WWAC	•		•	SBCR		•		
Tributary of Sandy Creek at NW 1/4, Sec. 3, T5N, R14E, IM	220600		WWAC	•		•	SBCR		•		
Tributary of Coal Creek at SW NW SW Sec. 18, T5N, R12E, IM	220600		HLAC	•		•	SBCR		•		
Ash Creek	220600	PPWS	WWAC	•		•	PCBR		•		
Mud Creek	220600		WWAC	•		•	PBCR		•		
Brushy Creek	220600	PPWS	WWAC	1		•	PBCR		•		
Blue Creek	220600	PPWS	WWAC	1		•	PBCR		•		
Peaceable Creek	220600	PPWS	WWAC	1		•	PBCR		•		
Chun Creek upstream from Sec. 15, T4N, R14E, IM	220600	EWS	WWAC	•		•	SBCR		•		
Tributary of Chun Creek at SW 1/4, Sec. 16, T4N, R14E, IM	220600		HLAC	•		•	SBCR		•		
Chun Creek in and downstream from Sec. 15, T4N, R14E, IM	220600	EWS	WWAC	•		•	PBCR		•		
Bull Creek downstream from Brown Lake	220600		WWAC	•		•	PBCR		•		
Brown Lake and Watershed	220600	PPWS	WWAC	1		•	PBCR		•	SWS	
Mill Creek	220600	PPWS	WWAC	•		•	PCBR		•		
Unnamed tributary of Canadian River at SE 1/4, Sec. 22, T6N, R10E, IM	220600		HLAC	•		•	SBCR		•		

TABLE 3.

**Designated Beneficial Uses of Surface Waters
Water Quality Management Basin 3, Upper Red River Basin**

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Lake Texoma	311100 & 310800	PPWS	WWAC	2	•	•	PBCR		•		
Glasses Creek	310800	PPWS	WWAC	1		•	PBCR		•		
Tributary at Old Channel Washita, NE 1/4, Sec. 33, T5S, R7E, IM	310800	EWS	HLAC	•		•	SBCR		•		
Pennington Creek	310800	PPWS	CWAC	1		•	PBCR		•	HQW	
Mill Creek	310800	PPWS	WWAC	•		•	PBCR		•		
Tributary of Three Mile Creek at SW Sec. 7, T2S, R5E, IM to SE Sec. 12, T2S, R4E	310800		HLAC	•		•	SBCR		•		
Washita River upstream from the headwaters of Lake Texoma including Foss Reservoir	310800, 310810, 310820, 310830 & 310840	PPWS	WWAC	1		•	PBCR		•		
Oil Creek	310800	PPWS	WWAC	•		•	PBCR		•		
Caddo Creek	310800	PPWS	WWAC	•		•	PBCR		•		
Sand Creek	310800		WWAC	•		•	PBCR		•		
Rock Creek downstream from Site #18 Dam	310800	PPWS	WWAC	•		•	PBCR		•		
SCS Site #18 including Watershed	310800	PPWS	WWAC	•		•	PBCR		•	SWS	
Hickory Creek downstream from Mountain Lake	310800	PPWS	WWAC	•		•	PBCR		•		
Mountain Lake and Watershed	310800	PPWS	WWAC	•		•	PBCR		•	SWS	
Rock Creek including Arbuckle Reservoir	310800	PPWS	WWAC	1		•	PBCR		•	SWS	
Guy Sandy Creek	310800	PPWS	WWAC	•		•	PBCR		•	HQW	
Dry Sandy Creek	310800	PPWS	WWAC	1		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Tributary of Dry Sandy Creek at Sec. 7, T1S, R2E, IM	310800		HLAC	•		•	SBCR		•		
Honey Creek	310800	PPWS	WWAC	•		•	PBCR		•	HQW	
Chigley Sandy Creek	310800	PPWS	WWAC	•		•	PBCR		•		
Wildhorse Creek	310810	PPWS	WWAC	•		•	PBCR		•		
Sandy Creek	310810	PPWS	WWAC	•		•	PBCR		•		
Rock Creek	310810	PPWS	WWAC	•		•	PBCR		•		
Salt Creek	310810	PPWS	WWAC	•		•	PBCR		•		
Black Bear Creek downstream from Fuqua Reservoir	310810	PPWS	WWAC	•		•	PBCR		•		
Fuqua Reservoir and Watershed	310810	PPWS	WWAC	•		•	PBCR		•	SWS	
Duncan Lake and Watershed	310810	PPWS	WWAC	•		•	PBCR		•	SWS	
Clear Creek downstream from Clear Creek Lake	310810	PPWS	WWAC	•		•	PBCR		•		
Clear Creek Lake and Watershed	310810	PPWS	WWAC	•		•	PBCR		•	SWS	
Humphreys Lake and Watershed	310810	PPWS	WWAC	•		•	PBCR		•	SWS	
Kickapoo Sandy Creek	310810	PPWS	WWAC	•		•	PBCR		•		
Turkey Sandy Creek	310810		WWAC	•		•	PBCR		•		
Tributary of Turkey Sandy Creek at SE 1/4, Sec. 26, T2N, R1E, IM	310810		WWAC	•		•	PBCR		•		
W. Sandy Creek (upper) upstream from Sec. 34, T2N, R1E, IM	310810		HLAC	•		•	SBCR		•		
W. Sandy Creek (lower) downstream from Sec. 27, T2N, R1E, IM	310810		WWAC	•		•	PBCR		•		
Red Branch	310810		WWAC	•		•	SBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Rush Creek downstream from U.S. Hwy. 77 near Pauls Valley	310810		HLAC	•		•	SBCR		•		
Rush Creek upstream from U.S. Hwy. 77 near Pauls Valley	310810		WWAC	•		•	PBCR		•		
Cherokee Sandy Creek	310810	PPWS	WWAC	•		•	PBCR		•		
Peavine Creek	310810	PPWS	WWAC	•		•	PBCR		•		
Washington Creek	310810	PPWS	WWAC	•		•	PBCR		•		
Pauls Valley Reservoir and Watershed	310810	PPWS	WWAC	•		•	PBCR		•	SWS	
Owl Creek	310810		WWAC	•		•	PBCR		•		
Beef Creek	310810	EWS	HLAC	•		•	SBCR		•		
Tributary of Beef Creek at SE 1/4, Sec.15, T4N, R2W, IM	310810	EWS	HLAC	•		•	SBCR		•		
Finn Creek	310810	PPWS	WWAC	•		•	PBCR		•		
Criner Creek	310810	PPWS	WWAC	•		•	PBCR		•		
Colbert Creek	310810	PPWS	WWAC	•		•	PBCR		•		
Roaring Creek	310810	PPWS	WWAC	•		•	PBCR		•		
Laflin Creek	310810	PPWS	WWAC	•		•	PBCR		•		
Winter Creek	310810	PPWS	WWAC	•		•	PBCR		•		
Little Washita River	310820	PPWS	WWAC	1		•	PBCR		•		
Gladys Creek downstream from U.S. Hwy. 277	310820		HLAC	•		•	SBCR		•		
Gladys Creek upstream from U.S. Hwy. 277	310820	PPWS	WWAC	•		•	PBCR		•		
Bitter Creek	310820	PPWS	WWAC	•		•	PBCR		•		
East Fork of Bitter Creek	310820	PPWS	WWAC	•		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
West Fork of Bitter Creek	310820	PPWS	WWAC	•		•	PBCR		•		
Tributary of Washita River at NE 1/4, Sec. 35, T7N, R7W, IM	310820		HLAC	•		•	SBCR		•		
Ionine Creek	310820	PPWS	WWAC	•		•	PBCR		•		
Jack Hollow Creek	310820	PPWS	WWAC	•		•	PBCR		•		
Spring Creek including Chickasha Reservoir	310830	PPWS	WWAC	•		•	PBCR		•		
Stinking Creek	310830	PPWS	WWAC	•		•	PBCR		•		
Delaware Creek	310830		WWAC	•		•	SBCR		•		
Sugar Creek	310830		WWAC	•		•	SBCR		•		
Tributary of Sugar Creek at NW 1/4, Sec. 29, T11N, R11W, IM	310830		HLAC	•		•	SBCR		•		
Cobb Creek downstream from Fort Cobb Lake	310830	PPWS	WWAC	•		•	PBCR		•		
Fort Cobb Lake and Watershed including Crowder Lake and watershed	310830	PPWS	WWAC	•		•	PBCR		•	SWS	NLW
Lake Creek	310830	PPWS	WWAC	•		•	PBCR		•	SWS	
Stinking Creek	310830	PPWS	WWAC	•		•	PBCR		•		
Rainy Mountain Creek downstream from S.H. 9	310830		WWAC	•		•	PBCR		•		
Rainy Mountain Creek upstream from S.H. 9	310830		WWAC	•		•	SBCR		•		
Oak Creek	310830	PPWS	WWAC	•		•	PBCR		•		
Vanderwork Lake and watershed	310830		WWAC	•		•	PBCR		•		NLW
Two Baby Creek	310830		WWAC	•		•	PBCR		•		
Cavalry Creek	310830	PPWS	WWAC	•		•	PBCR		•		
N. Cavalry Creek	310830	EWS	HLAC	•		•	SBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Tributary to N. Cavalry Creek at NW 1/4, Sec. 11, T9N, R17W, IM	310830	EWS	HLAC	•		•	SBCR		•		
Boggy Creek	310830		WWAC	•		•	PBCR		•		
Beaver Creek	310830		WWAC	•		•	SBCR		•		
Barnitz Creek	310830	PPWS	WWAC	•		•	PBCR		•		
East Barnitz Creek	310830	PPWS	WWAC	•		•	PBCR		•		
West Barnitz Creek	310830	PPWS	WWAC	•		•	PBCR		•		
Turkey Creek downstream from Clinton Lake	310830		WWAC	•		•	PBCR		•		
Clinton Lake and Watershed	310830	PPWS	WWAC	•		•	PBCR		•	SWS	
Oak Creek	310830	PPWS	WWAC	•		•	PBCR		•		
Panther Creek	310840	PPWS	WWAC	•		•	PBCR		•		
Quartermaster Creek	310840	PPWS	WWAC	•		•	PBCR		•		
Tributary of Quartermaster Creek at Sec. 17, T16N, R20W, IM	310840		HLAC	•		•	SBCR		•		
Hay Creek	310840	PPWS	WWAC	•		•	PBCR		•		
White Shield Creek	310840		HLAC	•		•	SBCR		•		
Sandstone Creek	310840	PPWS	WWAC	•		•	PBCR		•		
Dead Indian Creek	310840	PPWS	WWAC	•		•	PBCR		•		
Sergeant Major Creek	310840	PPWS	HLAC	•		•	SBCR		•		
Croton Creek	310840	PPWS	WWAC	•		•	PBCR		•		
Rush Creek	310840	PPWS	WWAC	•		•	PBCR		•		
Hickory Creek	311100	PPWS	WWAC	1		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Anadarche Creek downstream from Lake Murray	311100	PPWS	WWAC	•		•	PBCR		•		
Lake Murray and Watershed	311100	PPWS	WWAC	1		•	PBCR		•	SWS	
Red River from headwaters of Lake Texoma to Cache Creek	311100 & 311120	PPWS	WWAC	•		•	PBCR		•		
Walnut Bayou	311100	PPWS	WWAC	•			PBCR		•		
Simon Creek	311100	PPWS	WWAC	•		•	PBCR		•		
Walnut Creek	311100	PPWS	WWAC	2		•	PBCR		•		
Tributary of Walnut Creek at Sec. 28, T4S, R2W, IM	311100		HLAC	•		•	SBCR		•		
Whiskey Creek	311100		HLAC	•		•	SBCR		•		
Cottonwood Creek	311100	PPWS	WWAC	1		•	PBCR		•		
Tributary of Cottonwood Creek at Sec. 16, T4S, R1W, IM	311100		HLAC	•		•	SBCR		•		
Bull Creek	311100		HLAC	•		•	SBCR		•		
Mud Creek	311100	PPWS	WWAC	•		•	PBCR		•		
Clear Creek	311100	PPWS	WWAC	1		•	PBCR		•		
North Mud Creek	311100	PPWS	HLAC	1		•	PBCR		•		
Tributary of North Mud Creek at SW 1/4, Sec. 34, T4S, R4W, IM	311100		HLAC	•		•	SBCR		•		
West Mud Creek	311100	PPWS	WWAC	1		•	PBCR		•		
Negro Creek	311100	PPWS	WWAC	•		•	PBCR		•		
Willow Branch	311100	PPWS	WWAC	•		•	PBCR		•		
Crooked Creek	311100	PPWS	WWAC	•		•	PBCR		•		
Deer Creek	311100	PPWS	WWAC	•		•	PBCR		•		
Red Creek	311100	PPWS	WWAC	•		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Fleetwood Creek	311100	PPWS	WWAC	•		•	PBCR		•		
Beaver Creek downstream from Waurika Reservoir	311200	PPWS	WWAC	1		•	PBCR		•		
Cow Creek	311200	EWS	WWAC	•		•	PBCR		•		
Dry Creek	311200	PPWS	WWAC	•		•	PBCR		•		
Cotton Creek	311200	PPWS	WWAC	•		•	PBCR		•		
Claridy Creek	311200	EWS	WWAC			•	PBCR		•		
East Cow Creek	311200	EWS	HLAC	•		•	SBCR		•		
Tributary of East Cow Creek SW 1/4, Sec. 15, T1S, R7W, IM	311200	EWS	HLAC	•		•	SBCR		•		
Beaver Creek upstream from and including Waurika Reservoir	311210	PPWS	WWAC	•		•	PBCR		•	SWS	
Walker Creek	311210	PPWS	WWAC	1		•	PBCR		•	SWS	
Little Beaver Creek	311210	PPWS	WWAC	•		•	PBCR		•	SWS	
Stage Stand Creek	311210	PPWS	WWAC	•		•	PBCR		•	SWS	
Hell Creek	311210	PPWS	WWAC	•		•	PBCR		•	SWS	
Ninemile Beaver Creek	311210	PPWS	WWAC	1		•	PBCR		•		
Cache Creek	311300	PPWS	WWAC	•		•	PBCR		•		
West Cache Creek downstream from Panther Creek	311310	PPWS	WWAC	•		•	PBCR		•		
Deep Red Creek	311310	PPWS	WWAC	•		•	PBCR		•		
Little Deep Red Creek	311310	PPWS	WWAC	•		•	PBCR		•		
Jack Creek	311310	PPWS	WWAC	•		•	PBCR		•		
East Jack Creek	311310	PPWS	WWAC	•		•	PBCR		•		
Horse Creek	311310	PPWS	WWAC	•		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Deadman Creek	311310	PPWS	WWAC	•		•	PBCR		•		
Blue Beaver Creek	311310	PPWS	WWAC	•		•	PBCR		•		
Post Oak Creek	311310	PPWS	WWAC	•		•	PBCR		•		
Crater Creek	311310	PPWS	WWAC	•		•	PBCR		•	HQW	
Panther Creek	311310	PPWS	WWAC	•		•	PBCR		•	HQW	
West Cache Creek upstream from Panther Creek	311310	PPWS	WWAC	•		•	PBCR		•	HQW	
East Cache Creek downstream from Lake Ellsworth	311300	PPWS	WWAC	1		•	PBCR		•		
Temple Lake and Watershed	311300	PPWS	WWAC	•		•	PBCR		•	SWS	
Walters Lake and Watershed	311300	PPWS	WWAC	•		•	PBCR		•	SWS	
Ninemile Creek	311300		WWAC	•		•	PBCR		•		
Tributary to Ninemile Creek within Sec. 23, T 1 N, R 11 WIM including Comanche Lake	311300		WWAC			•	PBCR		•		
Wolf Creek	311300	PPWS	WWAC	•		•	PBCR		•		
Medicine Creek downstream from Lake Lawtonka	311300	PPWS	WWAC	1		•	PBCR		•		
Elmer Thomas Lake and Watershed	311300	PPWS	WWAC	•		•	PBCR		•	SWS	
Lawtonka Lake and Watershed	311300	PPWS	WWAC	•		•	PBCR		•	SWS	
Ellsworth Lake and Watershed	311300	PPWS	WWAC	•		•	PBCR		•	SWS	
Red River from Cache Creek to North Fork of the Red River	311310	EWS	WWAC	•		•	PBCR		•		
Rabbit Creek	311310	PPWS	WWAC	•		•	PBCR		•		
Tributary of Red River at Sec. 29, T4S, R13W, IM	311310		HLAC	•		•	SBCR		•		
Blue Creek	311310	PPWS	WWAC	•		•	PBCR		•		
Suttle Creek	311310		WWAC	•		•	SBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Tributary of Suttle Creek at SW 1/4, Sec. 20, T3S, R17W, IM	311310		HLAC	•		•	SBCR		•		
North Fork of the Red River including Altus Reservoir	311500 & 311510	PPWS	WWAC	3		•	PBCR		•		
Stinking Creek	311500	PPWS	WWAC	•		•	PBCR		•		
Tributary of Stinking Creek at SE 1/4, Sec. 30, T2N, R19W, IM	311500	EWS	HLAC	•		•	SBCR		•		
Otter Creek	311500	PPWS	WWAC	•		•	PBCR		•		
West Otter Creek downstream from Tom Steed Reservoir	311500	PPWS	WWAC	•		•	PBCR		•		
Tom Steed Reservoir and Watershed	311500	PPWS	WWAC	•		•	PBCR		•	SWS	
Glen Creek	311500	PPWS	WWAC	•		•	PBCR		•	SWS	
Elk Creek downstream from the confluence with Little Elk Creek	311500	PPWS	WWAC	2			PBCR		•		
Elk Creek from headwaters to confluence with Little Elk Creek	311500		HLAC	2			SBCR		•		
Little Elk Creek downstream from Lake Hobart	311500	PPWS	WWAC	•		•	PBCR		•		
Hobart Lake and Watershed	311500	PPWS	WWAC	•		•	PBCR		•	SWS	
Spring Creek	311500	PPWS	WWAC	•		•	PBCR		•		
Elk City Lake and watershed	311500		WWAC	•		•	PBCR		•		NLW
Elm Fork of the Red River	311800	PPWS	WWAC	3		•	PBCR		•		
Haystack Creek	311800	PPWS	WWAC	•		•	PBCR		•		
Deer Creek	311800	PPWS	WWAC	•		•	PBCR		•		
Fish Creek	311800	PPWS	WWAC	•		•	PBCR		•		
Bull Creek	311800	PPWS	WWAC	•		•	PBCR		•		
North Elm Creek	311800	PPWS	WWAC	•		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Flat Creek	311510		WWAC	•		•	PBCR		•		
Timber Creek	311510	PPWS	WWAC	•		•	PBCR		•		
Sand Creek	311510	PPWS	WWAC	•		•	PBCR		•		
Long Creek	311510	PPWS	WWAC	•		•	PBCR		•		
Turkey Creek	311510	PPWS	WWAC	•		•	PBCR		•		
Starvation Creek	311510	PPWS	WWAC	•		•	PBCR		•		
Buffalo Creek	311510	PPWS	WWAC	•		•	PBCR		•		
Sweetwater Creek	311510	PPWS	WWAC	•		•	PBCR		•		
Red River from confluence of the North Fork of the Red River to Buck Creek	311600	EWS	WWAC	•		•	PBCR		•		
Salt Fork of the Red River to the Texas State Line	311600	PPWS	WWAC	3		•	PBCR		•		
Turkey Creek	311600	PPWS	WWAC	1		•	PBCR		•		
Bitter Creek downstream of the boundary of Sections 3 & 2, T1N, R21W, IM	311600	EWS	WWAC	1		•	SBCR		•		
Bitter Creek upstream of the boundary of Sections 3 & 2, T1N, R21W, IM	311600	EWS	HLAC	1		•	SBCR		•		
Gypsum Creek	311600	PPWS	WWAC	•		•	PBCR		•		
Sandy Creek	311600	EWS	HLAC	1		•	SBCR		•		
Lebos Creek	311600		HLAC	•		•	SBCR		•		
Tributary of Lebos Creek at Sec. 2, T2N, R26W, IM	311600		HLAC	•		•	SBCR		•		
Prairie Dog Town Fork of the Red River from confluence of Buck Creek to 100 degree West Longitude	311600	EWS	WWAC	•		•	PBCR		•		

TABLE 4.

**Designated Beneficial Uses of Surface Waters
Water Quality Management Basin 4, Lower Red River**

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Red River from the Arkansas State Line to the Kiamichi River	410100	PPWS	WWAC	2		•	PBCR		•		
Norwood Creek	410100	PPWS	WWAC	•		•	PBCR		•		
Waterhole Creek	410100	PPWS	WWAC	•		•	PBCR		•		
Buzzard Creek	410100		WWAC	•		•	PBCR		•		
Tributary of Buzzard Creek at SE 1/4, Sec. 7, T7S, R22E, IM	410100		HLAC	•		•	SBCR		•		
Garland Creek	410100		WWAC			•	PBCR				
Tributary of Garland Creek at SE 1/4, Sec. 34, T6S, R21E, IM	410100		HLAC	•		•	SBCR		•		
Little River from the Arkansas State Line to Pine Creek Dam	410200 & 410210	PPWS	CWAC	1			PBCR		•	HQW	
Rock Creek	410200	PPWS	CWAC	•		•	PBCR		•		
Mountain Fork River downstream from U.S. Hwy 70 bridge	410210	PPWS	CWAC	1		•	PBCR		•		
Mountain Fork River upstream from U.S. Hwy 70 bridge to Broken Bow Dam	410210	PPWS	Trout	1			PBCR		•	HQW	
Upper Mountain Fork River from Broken Bow Dam including Broken Bow Reservoir to the 600 foot elevation level	410210	PPWS	CWAC	1	•		PBCR		•	SWS	
Egypt Creek	410210	PPWS	CWAC	•			PBCR		•	SWS	
Otter Creek	410210	PPWS	CWAC	•			PBCR		•	SWS	

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Panther Creek	410210	PPWS	CWAC	•			PBCR		•	ORW	
Buffalo Creek	410210	PPWS	CWAC	•			PBCR		•	SWS	
Mine Creek	410210		WWAC	•			PBCR		•		
Upper Mountain Fork River upstream from the 600 foot elevation level	410210	PPWS	CWAC	1			PBCR		•	ORW	Scenic River
Boktuklo Creek	410210	PPWS	CWAC	1			PBCR		•	ORW	
Blue Creek	410210	PPWS	CWAC	•			PBCR		•	ORW	
Big Eagle Creek	410210	PPWS	CWAC	1			PBCR		•	ORW	
Little Eagle Creek	410210	PPWS	CWAC	•			PBCR		•	ORW	
Dry Creek	410210		WWAC	•			PBCR		•		
Cucumber Creek	410210	PPWS	CWAC	1			PBCR		•	ORW	
Beech Creek	410210	PPWS	CWAC	1			PBCR		•	ORW	
Cow Creek	410210	PPWS	CWAC	1			PBCR		•	ORW	
Yanubbe Creek	410200	PPWS	CWAC	•		•	PBCR		•		
Tributary of Yanubbe Creek at NE 1/4, Sec. 29, T6S, R25E, IM	410200		HLAC	•		•	SBCR		•		
Mud Creek	410200	EWS	WWAC	•		•	SBCR		•		
Tributary of Mud Creek at SE 1/4, Sec. 31, T7S, R24E, IM	410100		HLAC	•		•	SBCR		•		
Yashau Creek	410200	PPWS	CWAC	1		•	PBCR		•		
Lukfata Creek	410210	PPWS	CWAC	•			PBCR		•	HQW	
Glover River	410210	PPWS	CWAC	1			PBCR		•	HQW	

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Cedar Creek	410210	PPWS	CWAC	1			PBCR		•	HQW	
Carter Creek	410210	PPWS	CWAC	•			PBCR		•	HQW	
Pine Creek	410210	PPWS	CWAC	•			PBCR		•	HQW	
West Fork	410210	PPWS	CWAC	•		•	PBCR		•	HQW	
Silver Creek	410210		WWAC	•			PBCR		•		
Bluff Creek	410210	PPWS	CWAC	•			PBCR		•	HQW	
East Fork	410210	PPWS	CWAC	•			PBCR		•	HQW	
Horse Head Creek	410210	PPWS	WWAC	1		•	PBCR		•		
Tributary of Horse Head Creek at Sec. 10, T6S, R22E, IM	410210		HLAC	•		•	SBCR		•		
Cypress Creek	410210	PPWS	CWAC	•		•	PBCR		•	HQW	
Little River upstream from and including Pine Creek Reservoir	410210	PPWS	CWAC	1	•		PBCR		•	HQW	
Pine Creek	410210	PPWS	CWAC	•			PBCR		•	HQW	
Terrapin Creek	410210	PPWS	CWAC	•			PBCR		•	HQW	
Houston Creek	410210	PPWS	CWAC	•			PBCR		•	HQW	
Caney Creek	410210		WWAC	•			PBCR		•		
Cloudy Creek	410210	PPWS	CWAC	•			PBCR		•	HQW	
Jack Creek	410210	PPWS	CWAC	•			PBCR		•	HQW	
Black Fork	410210	PPWS	CWAC	•			PBCR		•	HQW	
Red River upstream from the Kiamichi River to the Blue River	410400	PPWS	WWAC	•		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Kiamichi River including Hugo Reservoir to U.S. Hwy. 271 Bridge near Clayton	410300	PPWS	WWAC	1		•	PBCR		•		
Gates Creek	410300	PPWS	CWAC	1		•	PBCR		•		
Negro Creek	410300		HLAC	•		•	SBCR		•		
Bird Creek	410300	PPWS	WWAC	•		•	PBCR		•		
Long Creek	410300	PPWS	WWAC	•		•	PBCR		•		
North Fork	410300	PPWS	WWAC	•		•	PBCR		•		
Frazier Creek	410300	PPWS	CWAC	•		•	PBCR		•		
Rock Creek	410300	PPWS	CWAC	•		•	PBCR		•		
Cedar Creek	410300	PPWS	CWAC	•			PBCR		•	HQW	
Beaver Creek	410300	PPWS	WWAC	1		•	PBCR		•		
Tenmile Creek	410300	PPWS	WWAC	•		•	PBCR		•		
Buck Creek	410300	PPWS	WWAC	1		•	PBCR		•		
Clayton Lake and Watershed	410300	PPWS	WWAC	•		•	PBCR		•	SWS	
Kiamichi River upstream from U.S. Hwy 271 Bridge near Clayton	410310	PPWS	WWAC	1		•	PBCR		•		
Jackfork Creek including Sardis Reservoir	410310	PPWS	WWAC	•			PBCR		•	SWS	
Buffalo Creek	410310	PPWS	WWAC	•			PBCR		•	SWS	
Rock Creek	410310	PPWS	WWAC	•		•	PBCR		•		
Ozzie Cobb Lake and watershed	410300		WWAC	•		•	PBCR		•		NLW
Carl Albert Lake and Watershed	410310	PPWS	WWAC	•		•	PBCR		•	SWS	
Talihina Lake and Watershed	410310	PPWS	WWAC	•		•	PBCR		•	SWS	

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Pigeon Creek	410310	PPWS	CWAC	1		•	PBCR		•		
Horse Creek downstream from the borders of Sections 10 & 15, T7S, R17E, IM	410400	PPWS	WWAC	1		•	PBCR		•		
Horse Creek upstream from the borders of Sections 10 & 15, T7S, R17E, IM	410400		WWAC	1		•	SBCR		•		
Tributary of Horse Creek at NE 1/4, Sec. 4, T7S, R17E, IM	410400		HLAC	•		•	SBCR		•		
Muddy Boggy Creek	410400	PPWS	WWAC	•		•	PBCR		•		
Tributary of Muddy Boggy Creek at NW 1/4, Sec. 12, T2S, R11E, IM	410400		HLAC	•			SBCR		•		
Lick Creek	410400	PPWS	WWAC	•		•	PBCR		•		
Clear Boggy Creek	410400	PPWS	WWAC	•		•	PBCR		•		
Caney Creek	410400		WWAC	•		•	SBCR		•		
Delaware Creek	410400	PPWS	WWAC	•		•	PBCR		•		
Sandy Creek	410400		WWAC	•		•	PBCR		•		
Tributary of Sandy Creek at SE 1/4, Sec. 14, T2S, R8E, IM	410400		HLAC	•		•	SBCR		•		
(Byrds) Mill Creek	410400	PPWS	WWAC	•		•	PBCR		•		
McGee Creek including McGee Creek Reservoir	410400	PPWS	WWAC	•			PBCR		•	SWS	
North Boggy Creek downstream from Atoka Reservoir	410400	PPWS	WWAC	•		•	PBCR		•		
Tributary of North Boggy Creek at NW1/4, Sec. 29, T1S, R12E, IM	410400		HLAC	•		•	SBCR		•		
North Boggy Creek upstream from and including Atoka Reservoir	410400	PPWS	WWAC	1			PBCR		•	SWS	

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Coal Creek	410400	PPWS	WWAC	•			PBCR		•		
Tributary of Brier Creek at Sec. 35, T1N, R10E, IM	410400		HLAC	•		•	SBCR		•		
Caney Creek	410400	PPWS	WWAC	•		•	PBCR		•		
Coon Creek	410400	PPWS	WWAC	•		•	PBCR		•		
Coalgate Reservoir and Watershed	410400	PPWS	WWAC	•		•	PBCR		•	SWS	
Caney Boggy Creek	410400	PPWS	WWAC	•		•	PBCR		•		
Little Sandy Creek	410400		HLAC	•		•	SBCR		•		
Town Branch	410400		HLAC	•		•	SBCR		•		
Whitegrass Creek	410400	PPWS	WWAC	•		•	PBCR		•		
Blue River downstream from the State Hwy. 48A Bridge	410600	PPWS	WWAC	1		•	PBCR		•		
Tributary of Bokchito Creek at Sec. 22, T6S, R11E, IM	410600		HLAC	•		•	SBCR		•		
Caddo Creek	410600		WWAC	•		•	PBCR		•		
Mineral Bayou	410600	EWS	WWAC	•		•	PBCR		•		
Sandy Creek	410600	PPWS	WWAC	•		•	PBCR		•		
Blue River upstream from State Hwy. 48A Bridge to State Hwy. 7 Bridge	410600	PPWS	Trout	1	•		PBCR		•	HQW	
Blue River upstream from State Hwy. 7 Bridge	410700	PPWS	CWAC	1	•	•	PBCR		•	HQW	
Red River upstream from the Blue River to Lake Texoma Dam	410700	PPWS	WWAC	•	•	•	PBCR		•		
Island Bayou	410700	EWS	WWAC	1		•	SBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Sandy Creek	410700	PPWS	WWAC	•		•	PBCR		•		
Tributary of Sandy Creek at Sec. 20, T8S, R8E, IM	410700		HLAC	•		•	SBCR		•		

TABLE 5.

**Designated Beneficial Uses of Surface Waters
Water Quality Management Basin 5, Canadian River**

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
North Canadian River from Canadian River to S.H. 99 bridge	520500 & 520510	PPWS	WWAC	•		•	PBCR		•		
Deep Fork of Canadian River downstream from Arcadia Reservoir	520700	PPWS	WWAC	2		•	PBCR		•		
Wolf Creek downstream from Lake Henryetta	520700		WWAC	•		•	PBCR		•		
Coal Creek	520700	EWS	WWAC	•		•	SBCR		•		
Henryetta Lake and Watershed	520700	PPWS	WWAC	•		•	PBCR		•	SWS	
Moore Creek	520700		WWAC	•		•	PBCR		•		
Burgess Creek at Montezuma Creek NE 1/4, Sec. 8, T12N, R13E, IM	520700	EWS	WWAC	•		•	PBCR		•		
Cussetah Creek	520700		WWAC	•		•	PBCR		•		
Tributary of Cussetah at NE 1/4, Sec. 12, T13N, R13E, IM	520700		HLAC	•		•	SBCR		•		
Salt Creek downstream from Lake Okmulgee	520700	PPWS	WWAC	•		•	PBCR		•		
Okmulgee Lake and Watershed	520700	PPWS	WWAC	•		•	PBCR		•	SWS	
Flat Rock Creek	520700	PPWS	WWAC	•		•	PBCR		•		
Tributary of Adams Creek at NW1/4, Sec. 5, T14N, R12E, IM	520700	EWS	WWAC	•		•	PBCR		•		
Little Deep Fork Creek downstream from Sand Creek	520700		WWAC	•		•	PBCR		•		
Little Deep Fork Creek upstream from Sand Creek to State Hwy. 48 Bridge	520700	PPWS	HLAC	•		•	SBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Little Deep Fork Creek upstream from State Hwy. 48 Bridge	520700	PPWS	WWAC	•		•	PBCR		•		
Tributary of Little Deep Fork Creek at SE 1/4, Sec. 6, T15N, R8E, IM	520700		HLAC	•		•	SBCR		•		
Nuyaka Creek	520700	PPWS	WWAC	1		•	PBCR		•		
Buckeye Creek	520700	PPWS	WWAC	1		•	PBCR		•		
Okemah Lake and Watershed	520700	PPWS	WWAC	•		•	PBCR		•	SWS	
Salt Creek	520700	PPWS	WWAC	•		•	PBCR		•		
Camp Creek downstream from Stroud Lake	520700	PPWS	WWAC	•		•	PBCR		•		
Stroud Lake and Watershed	520700	PPWS	WWAC	•		•	PBCR		•	SWS	
Gray Horse Creek	520700		HLAC	•		•	SBCR		•		
Dry Creek	520700	PPWS	WWAC	•		•	PBCR		•		
West Beaver Creek	520700		WWAC	•		•	SBCR		•		
Deer Creek	520700	PPWS	WWAC	•		•	PBCR		•		
Robinson Creek	520700	PPWS	WWAC	•		•	PBCR		•		
Quapaw Creek	520700	PPWS	WWAC	•		•	PBCR		•		
Meeker Lake and Watershed	520700	PPWS	WWAC	•		•	PBCR		•	SWS	
Bellcow Creek	520700	PPWS	WWAC	•		•	PBCR		•		
Chandler Lake and Watershed	520700	PPWS	WWAC	•		•	PBCR		•	SWS	
Tributary of Bellcow Creek at Sec. 6, T15N, R3E, IM	520700		HLAC	•		•	SBCR		•		
Kickapoo Creek	520700	PPWS	WWAC	•		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
East Captain Creek	520700	PPWS	WWAC	•		•	PBCR		•		
Bear Creek	520700	PPWS	WWAC	•		•	PBCR		•		
Smith Creek	520700	PPWS	HLAC	1		•	PBCR		•		
Coon Creek	520700		WWAC	1		•	PBCR		•		
Coffee Creek downstream from the boundaries of Sec. 22 & 23, T14N, R02W, IM	520710	PPWS	HLAC	1		•	PBCR		•		
Coffee Creek upstream from the boundaries of Sec. 22 & 23, T14N, R02W, IM	520710	PPWS	WWAC	1		•	PBCR		•		
Arcadia Reservoir and Watershed	520710	PPWS	WWAC	1		•	PBCR		•	SWS	
Bad Creek	520500	PPWS	WWAC	•		•	PBCR		•		
Alabama Creek	520500	PPWS	WWAC	•		•	PBCR		•		
Weleetka Lake and Watershed	520500	PPWS	WWAC	•		•	PBCR		•	SWS	
Wewoka Creek downstream from the boundaries of Secs. 27 & 28, T9N, R6E, IM	520500	EWS	HLAC	2		•	PBCR		•		
Fish Creek	520500	PPWS	WWAC	•		•	PBCR		•		
Tributary of Wewoka Creek at SE NE SW Sec. 27, T9N, R10E, IM	520500		HLAC	•		•	SBCR		•		
Graves Creek	520500	PPWS	WWAC	•		•	PBCR		•		
Little Wewoka Creek	520500	PPWS	WWAC	•		•	PBCR		•		
Tributary of Wewoka Creek at Sec. 20, T8N, R8E, IM	520500		HLAC	•		•	SBCR		•		
Wewoka Lake and Watershed	520500	PPWS	WWAC	•		•	PBCR		•	SWS	

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Wewoka Creek upstream from the boundaries of Sec. 27 & 28, T9N, R6E, IM	520500	PPWS	HLAC	2		•	SBCR		•		
Tributary of Wewoka Creek at NW 1/4, Sec. 16, T9N, R5E, IM	520500		HLAC	•		•	SBCR		•		
Tributary of North Canadian River at Sec. 22, T10N, R11E, IM	520500		HLAC	•		•	SBCR		•		
Flat Rock Creek	520510	PPWS	WWAC	•		•	PBCR		•		
Sand Creek	520510		HLAC	•		•	SBCR		•		
Tributary of Sand Creek at SW 1/4, Sec. 34, T11N, R8E, IM	520510		HLAC	•		•	SBCR		•		
Turkey Creek	520510	PPWS	WWAC	•		•	PBCR		•		
Tecumseh Lake and Watershed	520510	PPWS	WWAC	•		•	PBCR		•	SWS	
Shan Creek	520510		HLAC	•		•	SBCR		•		
Shawnee Twin Lakes and Watershed	520510	PPWS	WWAC	•		•	PBCR		•	SWS	
North Deer Creek	520510	PPWS	WWAC	•		•	PBCR		•		
Tributary of the North Canadian River at NE 1/4, Sec. 36, T12N, R1E, IM	520510		HLAC	•		•	SCBR		•		
Horseshoe Lake	520520		WWAC			•	PBCR		•		
North Canadian River from State Hwy. 99 Bridge to Portland Street Bridge, Oklahoma City	520510 & 520520	EWS	WWAC	•		•	PBCR		•		
Choctaw Creek	520520	EWS	HLAC	•		•	SBCR		•		
Tributary of Choctaw Creek at NW 1/4, Sec. 27, T12N, R1W, IM	520520		HLAC	•		•	PBCR		•		
Crutcho Creek from North Canadian River to S.E. 15th Street, Del City	520520		WWAC	•		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Soldier Creek	520520		WWAC	•		•	PBCR		•		
Tributary of Soldier Creek at NW 1/4, Sec. 13, T11N, R02W, IM	520520		WWAC	•		•	SBCR		•		
Crutcho Creek upstream from S.E. 15th Street, Del City	520520		HLAC	•		•	SBCR		•		
Tributary of Crutcho Creek at SW 1/4, Sec. 16, T11N, R2W, IM	520520		WWAC	•		•	PBCR		•		
Cherry Creek	520520		HLAC	•		•	SBCR		•		
Crooked Oak Creek	520520	PPWS	WWAC	1		•	PBCR		•		
North Canadian River from Portland Street Bridge to Canton Reservoir Dam	520520 & 520530	PPWS	WWAC	•		•	PBCR		•		
Mustang Creek	520520		WWAC	•		•	PBCR		•		
Shell Creek	520530	PPWS	WWAC	•		•	PBCR		•		
Purcell Creek	520530	PPWS	WWAC	•		•	PBCR		•		
Six Mile Creek	520530	PPWS	WWAC	•		•	PBCR		•		
Minnehaha Creek	520530	PPWS	WWAC	•		•	SBCR		•		
Canadian River from its confluence with Little River to Buckhead Creek	520600 & 520800	PPWS	WWAC	•		•	PBCR		•		
Little River	520800	PPWS	WWAC	1		•	PBCR		•		
Holdenville Reservoir and Watershed	520800	PPWS	WWAC	•		•	PBCR		•	SWS	
Bird Creek	520800		HLAC	•		•	SBCR		•		
Tributary of Bird Creek at NW 1/4, Sec. 6, T6N, R9E, IM	520800		WWAC	•		•	SBCR		•		
Salt Creek	520800	PPWS	WWAC	•		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Tributary to Salt Creek at NW SW Sec. 33, T8N R5E, IM	520800		WWAC	•		•	PBCR		•		
Thunderbird Lake and Watershed	520810	PPWS	WWAC	1			PBCR		•	SWS	
Tributary of Canadian River at SE 1/4, Sec.18, T5N, R7E, IM	520600		HLAC	•		•	SBCR		•		
Jumper Creek	520600	EWS	WWAC	1		•	PBCR		•		
Canadian Sandy Creek	520600	PPWS	WWAC	1		•	PBCR		•		
Little Sandy Creek	520600	PPWS	WWAC	1		•	PBCR		•		
Spring Brook Creek	520600	PPWS	WWAC	1		•	PBCR		•		
Tributary of Cat Creek at Sec. 7, T6N, R4E, IM	520600		HLAC	•		•	SBCR		•		
Pond Creek	520600	PPWS	WWAC	•		•	PBCR		•		
Canadian River upstream from its confluence with Buckhead Creek to the US Hwy. 81 bridge	520610		HLAC	2		•	SBCR		•		
Buckhead Creek	520610	PPWS	WWAC	•		•	PBCR		•		
Tributary of Canadian River at NE 1/4, Sec. 35, T6N, R1W, IM	520610		HLAC	•		•	SBCR		•		
Walnut Creek	520610		WWAC	1		•	PBCR		•		
Bridge Creek at Sec. 22, T9N, R5W, IM	520610		WWAC	•		•	PBCR		•		
Pond Creek (return flow, City of Newcastle)	520610	PPWS	WWAC	•		•	PBCR		•		
Tributary of Pond Creek at NE 1/4, Sec. 14, T9N, R4W, IM	520610		HLAC	•		•	SBCR		•		
Cow Creek	520610	PPWS	WWAC	•		•	PBCR		•		
Dry Creek	520610	PPWS	WWAC	•		•	PBCR		•		
Store Creek	520610	PPWS	WWAC	•		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
West Creek	520610		HLAC	•		•	SBCR		•		
Buggy Creek	520610	EWS	WWAC	•		•	PBCR		•		
Tributary of Canadian River at SW 1/4, Sec. 3, T10N, R7W, IM	520610		HLAC	•		•	SBCR		•		
Canadian River upstream from US Hwy. 81 bridge	520610 & 520620	EWS	WWAC	2		•	PBCR		•		
Deer Creek	520620	PPWS	WWAC	•		•	PBCR		•		
Little Deep Creek	520620		HLAC	•		•	PBCR		•		
Little Deer Creek	520620	PPWS	WWAC	•		•	PBCR		•		
Horse Creek	520620	PPWS	WWAC	•		•	PBCR		•		
Tributary of Canadian River at SE 1/4, Sec. 4, T15N, R14W, IM	520620		HLAC	•		•	SBCR		•		
Squirrel Creek	520620	PPWS	WWAC	•		•	PBCR		•		
Tributary of Squirrel Creek at SE 1/4 of NW 1/4 of SW 1/4 of Sec. 6, T9N, R4E, IM	520620		WWAC	•			PBCR		•		
Lone Creek	520620	PPWS	WWAC	•		•	PBCR		•		
Trail Creek	520620	EWS	HLAC	•		•	SBCR		•		
Gyp Creek	520620	PPWS	WWAC	•		•	PBCR		•		
Red Creek	520620	PPWS	WWAC	•		•	PBCR		•		
Turkey Creek	520620	PPWS	WWAC	•		•	PBCR		•		
South Turkey Creek	520620	PPWS	WWAC	•		•	PBCR		•		
Hackberry Creek	520620	PPWS	WWAC	•		•	PBCR		•		
Mosquito Creek downstream from Sec. 31, T19N, R24W, IM	520620	PPWS	WWAC	•		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Mosquito Creek upstream from Sec. 6, T18N, R24W, IM	520620	EWS	HLAC	•		•	SBCR		•		
Red Bluff Creek	520620	PPWS	WWAC	•		•	PBCR		•		
Commission Creek	520620	PPWS	WWAC	•		•	PBCR				

TABLE 6.

**Designated Beneficial Uses of Surface Waters
Water Quality Management Basin 6, Upper Arkansas River**

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Arkansas River upstream from and including Keystone Reservoir to Kaw Dam	621200	PPWS	WWAC	2		•	PBCR		•		
Cimarron River upstream from Keystone Reservoir to the Kansas State Line	620900 620910 & 620920	EWS	WWAC	3		•	PBCR		•		
Tiger Creek	620900		WWAC	•		•	PBCR		•		
Euchee Creek downstream from Sec. 5, T17N, R6E, IM	620900	EWS	WWAC	•		•	PBCR		•		
Euchee Creek upstream from Sec. 5, T17N, R6E, IM	620900	EWS	WWAC	•		•	SBCR		•		
Cottonwood Creek	620900	EWS	WWAC	•		•	PBCR		•		
Wildhorse Creek	620900	EWS	WWAC	•		•	PBCR		•		
Skull Creek	620900	EWS	WWAC	•		•	PBCR		•		
Salt Creek	620900	PPWS	WWAC	•		•	PBCR		•		
Council Creek	620900	PPWS	WWAC	•		•	PBCR		•		
Big Creek downstream from Cushing Lake	620900	PPWS	WWAC	•		•	PBCR		•		
Cushing Lake and Watershed	620900	PPWS	WWAC	•		•	PBCR		•	SWS	
Stillwater Creek downstream from Little Stillwater Creek	620900	PPWS	WWAC	•		•	PBCR		•		
Little Stillwater Creek	620900	PPWS	WWAC	•		•	PBCR		•		
Stillwater Creek from Little Stillwater Creek to Sec. 32, T19N, R3E, IM	620900	EWS	HLAC	•		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Stillwater Creek upstream from Sec. 33, T19N, R3E to the Lake Carl Blackwell Dam	620900	EWS	HLAC	•		•	SBCR		•		
Brush Creek	620900		HLAC	•		•	SBCR		•		
Boomer Creek below Boomer Lake	620900	PPWS	WWAC	•		•	PBCR		•		
Boomer Lake and Watershed	620900	PPWS	WWAC	•		•	PBCR		•	SWS	
McMurtry Lake and Watershed	620900	PPWS	WWAC	•		•	PBCR		•	SWS	
Carl Blackwell Lake and Watershed	620900	PPWS	WWAC	•		•	PBCR		•	SWS	
Sand Creek	620900		HLAC	•		•	SBCR		•		
Dugout Creek	620900	PPWS	WWAC	•		•	PBCR		•		
Fitzgerald Creek	620900	PPWS	WWAC	•		•	PBCR		•		
Langston Lake and Watershed	620900	PPWS	WWAC	•		•	PBCR		•	SWS	
Beaver Creek	620900	PPWS	WWAC	•		•	PBCR		•		
Skeleton Creek downstream from Bitter Creek	620900	PPWS	WWAC	2		•	PBCR		•		
Wolf Creek	620910	PPWS	WWAC	•		•	PBCR		•		
Otter Creek	620910	PPWS	WWAC	•		•	PBCR		•		
Horse Creek	620910	PPWS	WWAC	•		•	PBCR		•		
Bitter Creek	620910	PPWS	WWAC	•		•	PBCR		•		
Skeleton Creek from Bitter Creek to Boggy Creek	620900	EWS	HLAC	•		•	SBCR		•		
Hackberry Creek	620910	EWS	WWAC	•		•	SBCR		•		
Tributary of Skeleton Creek at Sec. 27, T22N, R5W, IM	620910		HLAC	•		•	SBCR		•		
Skeleton Creek upstream from Boggy Creek	620900	PPWS	WWAC	1		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Tributary of Boggy Creek at NW 1/4, Sec. 14, T22N, R6W, IM	621010		HLAC	•		•	SBCR		•		
Cottonwood Creek	620910	PPWS	WWAC	2		•	PBCR		•		
Guthrie Lake and Watershed	620910	PPWS	WWAC	•		•	PBCR		•	SWS	
Liberty Lake and Watershed	620910	PPWS	WWAC	•		•	PBCR		•	SWS	
Chisholm Creek	620910	PPWS	WWAC	•		•	PBCR		•		
Deer Creek	620910	PPWS	WWAC	•		•	PBCR		•		
Bluff Creek	620910	PPWS	WWAC	•		•	PBCR		•		
Kingfisher Creek	620910		WWAC	•		•	PBCR		•		
Uncle John Creek	620910		WWAC	•		•	PBCR		•		
Dead Indian Creek	620910	PPWS	WWAC	•		•	PBCR		•		
Tributary of Dead Indian Creek at NE 1/4, Sec. 19, T15N, R8W, IM	620910	EWS	HLAC	•		•	SBCR		•		
Otter Creek	620910	PPWS	WWAC	•		•	PBCR		•		
Turkey Creek	620910	PPWS	WWAC	•		•	PBCR		•		
Dry Salt Creek	620910		HLAC	•		•	SBCR		•		
Tributary of Dry Salt Creek at NW 1/4, Sec. 15, T21N, R8W, IM	620910		HLAC	•		•	SBCR		•		
Cooper Creek	620910	PPWS	WWAC	•		•	PBCR		•		
Salt Creek downstream from the Blaine-Kingfisher County Line	620910	EWS	WWAC	2		•	SBCR		•		
Salt Creek upstream from the Blaine-Kingfisher County Line	620910	EWS	HLAC	2		•	SBCR		•		
Spring Creek	620910	PPWS	WWAC	•		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Tributary of Spring Creek at Sec. 19, T19N, R10W, IM	620910		HLAC	•		•	SBCR		•		
Tributary of Salt Creek at Sec. 11, T17N, R11W, IM	620910		HLAC	•		•	SBCR		•		
Hoyle Creek	620910	PPWS	WWAC	•		•	PBCR		•		
Deep Creek	620910	PPWS	WWAC	•		•	PBCR		•		
Elm Creek	620910	PPWS	WWAC	•		•	PBCR		•		
Indian Creek	620910	PPWS	WWAC	•		•	PBCR		•		
Sand Creek	620920	PPWS	WWAC	•		•	PBCR		•		
Gypsum Creek	620920	PPWS	WWAC	•		•	PBCR		•		
Cottonwood Creek	620920	PPWS	WWAC	•		•	PBCR		•		
Eagle Chief Creek	620920	PPWS	WWAC	•		•	PBCR		•		
Tributary of Eagle Chief Creek at Sec. 36, T24N, R12W, IM	620920		HLAC	•		•	SBCR		•		
Lake Creek	620920		WWAC	•		•	PBCR		•		
Cheyenne Creek	620920	PPWS	WWAC	•		•	PBCR		•		
Barney Creek	620920	PPWS	WWAC	•		•	PBCR		•		
Griever Creek	620920	PPWS	WWAC	•		•	PBCR		•		
East Griever Creek	620920	PPWS	WWAC	•		•	PBCR		•		
Main Creek	620920	PPWS	WWAC	•		•	PBCR		•		
Ewers Creek	620920	PPWS	WWAC	•		•	PBCR		•		
Dog Creek	620920	EWS	WWAC	2		•	PBCR		•		
Sand Creek	620920	PPWS	WWAC	•		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Chimney Creek	620920	PPWS	WWAC	•		•	PBCR		•		
White Horse Creek	620920	PPWS	WWAC	•		•	PBCR		•		
Doe Creek	620920	PPWS	WWAC	•		•	PBCR		•		
Long Creek	620920	PPWS	WWAC	•		•	PBCR		•		
Red Horse Creek	620920	PPWS	WWAC	•		•	PBCR		•		
Anderson Creek	620920	PPWS	WWAC	•		•	PBCR		•		
Traders Creek	620920	PPWS	WWAC	•		•	PBCR		•		
Moccasin Creek	620920	PPWS	WWAC	•		•	PBCR		•		
Sand Creek	620920	PPWS	WWAC	•		•	PBCR		•		
Buffalo Creek	620920	PPWS	WWAC	•		•	PBCR		•		
Sleeping Bear Creek	620920	PPWS	WWAC	•		•	PBCR		•		
Sand Creek	620920	PPWS	WWAC	•		•	PBCR		•		
Day Creek	620920	PPWS	WWAC	•		•	PBCR		•		
Keno Creek	620920	PPWS	WWAC	•		•	PBCR		•		
Cimarron River from Kansas State Line near Englewood, Kansas to the Kansas State Line near Forgan, Oklahoma	620930	PPWS	WWAC	•		•	PBCR		•		
Snake Creek	620930	PPWS	WWAC	•		•	PBCR		•		
Redoubt Creek	620930	PPWS	WWAC	•		•	PBCR		•		
Horse Creek	620930	EWS	WWAC	•		•	SBCR		•		
Crooked Creek	620930	PPWS	WWAC	•		•	PBCR		•		
Cottonwood Creek	620930	PPWS	WWAC	•		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Bug Creek	621200	PPWS	WWAC	•		•	PBCR		•		
Black Bear Creek	621200	PPWS	WWAC	2		•	PBCR		•		
Camp Creek	621200	PPWS	WWAC	•		•	PBCR		•		
Pawnee Lake and Watershed	621200	PPWS	WWAC	1		•	PBCR		•	SWS	
Oak Creek	621200	PPWS	WWAC	•		•	PBCR		•		
Tributary of Oak Creek at SE 1/4, Sec. 27, T21N, R3E, IM	621200		WWAC	•		•	PBCR		•		
Cow Creek downstream from Perry Lake	621200	PPWS	WWAC	•		•	PBCR		•		
Perry Lake and Watershed	621200	PPWS	WWAC	•		•	PBCR		•	SWS	
Salt Creek	621200	PPWS	WWAC	•		•	PBCR		•		
Fairfax Lake and Watershed	621200	PPWS	WWAC	•		•	PBCR		•	SWS	
Little Chief Creek	621200	PPWS	WWAC	•		•	PBCR		•		
Phillips Lake and Watershed	621200	PPWS	WWAC	•		•	PBCR		•	SWS	
Tributary of Salt Creek at SW 1/4, Sec. 34, T27N, R6E, IM	621200		HLAC	•		•	SBCR		•		
Elm Creek	621200	PPWS	WWAC	•		•	PBCR		•		
Doga Creek	621200	PPWS	WWAC	•		•	PBCR		•		
Greasy Creek	621200		WWAC	•		•	PBCR		•		
Red Rock Creek	621200		WWAC	2		•	PBCR		•		
Tributary of Red Rock Creek at NW 1/4, Sec. 7, T23N, R2E, IM	621200		HLAC	•		•	SBCR		•		
Salt Fork of the Arkansas River	621000 621010	PPWS	WWAC	3		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Great Salt Plains Reservoir and watershed	621010	PPWS	WWAC	3		•	PBCR		•		NLW
Bois d'Arc Creek	621000	PPWS	WWAC	1		•	PBCR		•		
Spring Creek downstream from Sec. 3, T27N, R2E, IM	621000	EWS	WWAC	1		•	PBCR		•		
Spring Creek upstream from Sec. 10, T27N, R2E, IM to Sec. 27, T28N, R2E, IM	621000	EWS	HLAC	1		•	SBCR		•		
Spring Creek upstream from Sec. 34, T28N, R2E, IM	621000	EWS	WWAC	1		•	PBCR		•		
Chikaskia River	621100	PPWS	WWAC	1		•	PBCR		•		
Duck Creek	621100	PPWS	WWAC	•		•	PBCR		•		
Stink Creek	621100	PPWS	WWAC	•		•	PBCR		•		
Bitter Creek	621100	PPWS	WWAC	•		•	PBCR		•		
Doe Creek	621100	PPWS	WWAC	•		•	PBCR		•		
Bluff Creek	621100	PPWS	WWAC	•		•	PBCR		•		
Deer Creek	621000	PPWS	WWAC	•		•	PBCR		•		
Pond Creek	621000	PPWS	WWAC	•		•	PBCR		•		
Polecat Creek	621000	PPWS	WWAC	•		•	PBCR		•		
Bullwacker Creek	621000	EWS	HLAC	•		•	SBCR		•		
Osage Creek	621000	PPWS	WWAC	•		•	PBCR		•		
Crooked Creek	621000	PPWS	WWAC	•		•	PBCR		•		
Sand Creek	621000	PPWS	WWAC	•		•	PBCR		•		
Wagon Creek	621000	PPWS	WWAC	•		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Tributary of Wagon Creek at Sec. 10, T25N, R9W, IM	621000		HLAC	•		•	SBCR		•		
Clay Creek	621010	EWS	WWAC	•		•	PBCR		•		
East Clay Creek	621010	PPWS	WWAC	•		•	PBCR		•		
West Clay Creek	621010	PPWS	WWAC	•		•	PBCR		•		
Sandy Creek	621010	PPWS	WWAC	•		•	PBCR		•		
Little Sandy Creek	621010	PPWS	WWAC	•		•	PBCR		•		
Medicine Lodge River	621010	PPWS	WWAC	•		•	PBCR		•		
Driftwood Creek	621010	PPWS	WWAC	•		•	PBCR		•		
Turkey Creek	621010	PPWS	WWAC	•		•	PBCR		•		
Greenleaf Creek	621010	PPWS	WWAC	•		•	PBCR		•		
Yellowstone Creek	621010	PPWS	WWAC	•		•	PBCR		•		
Hoover Ditch	621200		HLAC	•		•	SBCR		•		
Ponca Lake and Watershed	621200	PPWS	WWAC	•		•	PBCR		•	SWS	
Arkansas River upstream from Kaw Dam to Kansas State Line	621210	PPWS	WWAC	•		•	PBCR		•		
Beaver Creek	621210	PPWS	WWAC	•		•	PBCR		•		

TABLE 7.

**Designated Beneficial Uses of Surface Waters
Water Quality Management Basin 7, Panhandle Region**

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
North Canadian River upstream from and including Canton Reservoir to Hwy 50	720500	PPWS	WWAC	3		•	PBCR		•		
Cheyenne Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Deep Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Bent Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Camp Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Kizer Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Cottonwood Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Persimmon Creek	720500	PPWS	WWAC	•		•	PBCR		•		
North Persimmon Creek	720500	PPWS	WWAC	•		•	PBCR		•		
South Persimmon Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Indian Creek	720500	PPWS	WWAC	•		•	PBCR		•		
North Canadian (Beaver) River upstream from Hwy. 50 to Lake Optima	720500		WWAC	3		•	PBCR		•		
Wolf Creek	720500	PPWS	WWAC	•		•	PBCR		•	SWS	
Fort Supply Reservoir and watershed	720500	PPWS	WWAC	•		•	PBCR		•	SWS	NLW
Sixteenmile Creek	720500	PPWS	WWAC	•		•	PBCR		•	SWS	
Little Wolf Creek	720500	PPWS	WWAC	•		•	PBCR		•	SWS	
Buzzard Creek	720500	PPWS	WWAC	•		•	PBCR		•	SWS	
Twentyfive mile Creek	720500	PPWS	WWAC	•		•	PBCR		•	SWS	
Willow Creek	720500	PPWS	WWAC	•		•	PBCR		•	SWS	
Rock Creek	720500	PPWS	WWAC	•		•	PBCR		•	SWS	

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Otter Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Clear Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Kiowa Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Camp Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Sand Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Coon Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Mexico Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Duck Pond Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Camp Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Clear Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Cottonwood Creek	720500	PPWS	WWAC	•		•	PBCR		•		
South Fork of Clear Creek	720500	PPWS	WWAC	•		•	PBCR		•		
North Fork of Clear Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Home Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Sixmile Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Willow Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Sharp Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Jackson Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Bull Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Fulton Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Sand Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Palo Duro Creek	720500	PPWS	WWAC	•		•	PBCR		•		
Chiquita Creek	720500	PPWS	WWAC	•		•	PBCR		•		

Waterbody Name and Sequence	WQM Segment	Water Supply	F&W Prop	Ag	HP	M&I	Rec	Nav	Aes	Limitations	Remarks
Hackberry Creek	720500	PPWS	WWAC	•		•	PBCR		•		
North Canadian (Beaver) River upstream from Lake Optima to Texas State Line	720510	PPWS	WWAC	1		•	PBCR		•		
Coldwater Creek	720510	PPWS	WWAC	•		•	PBCR		•		
Pony Creek	720510	PPWS	WWAC	•		•	PBCR		•		
Goff Creek	720510	PPWS	WWAC	•		•	PBCR		•		
Dry Sand Draw	720510										(1)
Tepee Creek	720510	PPWS	WWAC	•		•	PBCR		•		
Sand Creek	720510	PPWS	WWAC	•		•	PBCR		•		
North Canadian (Beaver) River upstream from Texas State Line to New Mexico State Line	720510	PPWS	WWAC	1		•	PBCR		•	HQW	
Ciencueilla Creek from mouth to New Mexico State Line	720510	PPWS	WWAC	•		•	PBCR		•		
Cimarron River upstream from the Colorado State Line to the New Mexico State Line	720900	PPWS	WWAC	•		•	PBCR		•	HQW	
South Picket House Draw	720900	PPWS	WWAC	•		•	PBCR		•		
Cold Springs Creek	720900	PPWS	WWAC	•		•	PBCR		•		
Gallinas Cañon	720900	PPWS	WWAC	•		•	PBCR		•		
Water Canyon	720900	PPWS	WWAC	•		•	PBCR		•		
South Carrizo Creek	720900	PPWS	WWAC	•		•	PBCR		•		
Cottonwood Canyon Creek	720900	PPWS	WWAC	•		•	PBCR		•		
Tesesquite Creek	720900	PPWS	WWAC	•		•	PBCR		•		
North Carrizo Creek	720900	PPWS	WWAC	•		•	PBCR		•		
Carrizozo Creek	720900	PPWS	WWAC	•		•	PBCR		•		

APPENDIX B. AREAS WITH WATERS OF RECREATIONAL AND/OR ECOLOGICAL SIGNIFICANCE

The following tables list National and State parks, National forests, wildlife areas, wildlife management areas, wildlife refuges (Table 1) and areas which contain federally listed threatened or endangered species pursuant to the Federal Endangered Species Act (Table 2).

TABLE 1 - National and State Parks, National Forests, Wildlife Areas, Wildlife Management Areas, and Wildlife Refuges

PROTECTED AREA/WATER	WQM Segment
Adair State Park	121700
Alabaster Caverns State Park	620920
Altus-Lugert Wildlife Management Area	311510
Arrowhead State Park	220600
Atoka Wildlife Management Area	410400
Beaver River Wildlife Management Area	720500
Beaver State Park	720500
Beavers Bend Resort State Park	410200
Bernice State Park	121600
Black Kettle National Grasslands	310840
Black Kettle Wildlife Management Area	310840
Black Mesa State Park/Preserve	720900
Blue River Wildlife Management Area	310800
Boggy Depot State Park	410400
Boiling Springs State Park	720500
Boswell State Park	410400
Broken Bow Wildlife Management Area	410210
Candy Wildlife Management Area	121300
Canton Wildlife Management Area	720500
Cherokee State Parks I, II, III	121600
Cherokee Landing State Park	121700
Chickasaw National Recreation Area	310800
Chickasaw Wildlife Management Area	310800

Chouteau Wildlife Management Area	121500
Clayton Lake State Park	410300
Cookson Hills Wildlife Management Area	220200
Cooper Wildlife Management Area	720500
Copan Wildlife Management Area	121400
Crowder Lake State Park	310830
Deep Fork National Wildlife Refuge	520700
Deep Fork Wildlife Management Area	520700
Disney/Little Blue State Parks	121600
Dripping Springs State Park (Delaware)	121700
Dripping Springs State Park (Okmulgee)	520700
Ellis Co. Wildlife Management Area	520600
Eufaula Wildlife Management Area	520500 520700 220600
Five Civilized Tribes State Park	121600
Fobb Bottom Wildlife Management Area	311100
Fort Cobb State Park	310830
Fort Cobb Wildlife Management Area	310830
Fort Gibson Wildlife Management Area	121600
Fort Supply Wildlife Management Area	720500
Foss State Park	310830
Fountainhead State Park	520700
Gary Sherrer Wildlife Management Area	410310
Great Plains State Park	621010
Great Salt Plains State Park	621010
Greenleaf State Park	120400
Gruber/Cherokee Wildlife Management Area	120400
Hackberry Flat Wildlife Management Area	311310
Heavener Runestone State Park	220100

Heyburn Wildlife Management Area	120400
Hickory Creek Wildlife Management Area	311100
Hochatown State Park	410200
Honey Creek State Park	121600
Honobia Creek Wildlife Management Area	410210
Hugo Wildlife Management Area	410300
Hulah Wildlife Management Area	121400
James M. Collins Wildlife Management Area	220600
John Dahl Wildlife Management Area	621200
Kaw Wildlife Management Area	621210
Keystone State Park	620900
Keystone Wildlife Management Area	620900 621200
Lake Eucha State Park	121600
Lake Murray State Park	311100
Lake Texoma Resort Park	310000
Lake Wister State Park	220100
Lexington Wildlife Management Area	520600
Little River National Wildlife Refuge	410200
Little River State Park	520810
Love Valley Wildlife Management Area	311100
McClellan-Kerr Wildlife Management Area	120400
McCurtain Co. Wilderness Area	410210
McGee Creek State Park	410400
McGee Creek Wildlife Management Area	410400
Mountain Park Wildlife Management Area	311500
Oklahoma Bat Caves National Wildlife Refuge	121600
Okmulgee State Park	520700
Okmulgee Wildlife Management Area	520700
Oologah Wildlife Management Area	121510

Optima National Wildlife Refuge	720510
Optima Wildlife Management Area	720510
Osage Hills State Park	121400
Osage-Western Wall Rock Creek Wildlife Management Area	121400
Ouachita National Forest	410210 410310 220100
Ouachita Wildlife Management Area	220100
Packsaddle Wildlife Management Area	520620
Pine Creek Wildlife Management Area	410201
Pushmataha Wildlife Management Area	410300
Quartz Mountain State Resort Park	311510
Raymond Gary State Park	410300
Red Rock Canyon State Park	310830
Redbud Valley Conservancy Area	121300
Rita Blanca National Grasslands	720510
Robbers Cave State Park	220100
Robbers Cave Wildlife Management Area	220100
Robert S. Kerr State Wildlife Management Area	220200
Roman Nose State Park	620910
Sallisaw State Park	220200
Sandy Sanders Wildlife Management Area	311800
Salt Plains National Wildlife Refuge	621010
Sequoyah National Wildlife Refuge	220200
Sequoyah State Park/Western Hills Resort Park	121600
Sheppard Point Recreational Area	120400
Skiatook Wildlife Management Area	121300
Snowdale State Park	121600
Spavinaw State Park	121600
Spavinaw Hills Wildlife Management Area	121600

Spiro Mound State Park	220200
Stinchcomb Wildlife Refuge	520520
Stringtown Wildlife Management Area	410400
Sutton Wilderness Area	520810
Talimena State Park	410310
Tenkiller State Park	121700
Tenkiller Wildlife Management Area	121700
Texoma/Washita Arm Wildlife Management Area	310800
Tishomingo National Wildlife Refuge	310800
Tishomingo Wildlife Management Area	310800
Turkey Creek Recreational Area	410210
Twin Bridges State Park	121600
Wahshashe State Park	121400
Walnut Creek State Park	621200
Washita National Wildlife Refuge	310840
Waurika Wildlife Management Area	311210
Webbers Falls Wildlife Management Area	120400
Wichita Mountains National Wildlife Refuge	311310 311500
Yourman Wildlife Management Area	220600

TABLE 2 - Areas Which contain federally listed Threatened or Endangered Species pursuant to the Federal Endangered Species Act

PROTECTED AREA/WATER	WQM SEGMENT
Black Fork Creek in Pushmataha County from its junction with Little River upstream to Oklahoma Highway 144 crossing.	410210
East Fork and West Fork Creek. East Fork of Glover Creek (River), main channel in Pushmataha County from its junction with the West Fork Glover Creek (River) upstream to 4 air miles north-northwest of the community of Bethel	410210
Glover Creek (River), main channel in Pushmataha County from Oklahoma Highway 7 crossing upstream to the junction of the East Fork and West Fork of the Glover Creek (River)	410210
Kiamichi River above Hugo Reservoir	410300
Little River, main channel in Pushmataha County from the mouth to Cloudy Creek upstream to the Pushmataha County Line	410210
Little River below Pine Creek Reservoir	410200 410210
Mountain Fork Creek (River), main Channel in McCurtain county, from mouth of Boktukola Creek 6 air miles south-southwest of Smithville, upstream to the Oklahoma-Arkansas State line	410210
Neosho (Grand) River above Miami	121600
West Fork Glover Creek (River), main channel in Pushmataha County from its junction with the East Fork Glover River upstream to the community of Battiest	410210

[Source: Amended at 9 Ok Reg 1889, eff 5-26-92; Revoked and reenacted at 12 Ok Reg 3305, eff 7-27-95; Revoked and reenacted at 16 Ok Reg 3250, eff 7-12-99]

APPENDIX C. SUITABILITY OF WATER FOR LIVESTOCK AND IRRIGATION USES

(a) The intake of highly mineralized water by animals can cause physiological disturbances of varying degrees. Lactation and reproduction are distributed by continuous use of water of unfavorable mineral composition. In some cases, particular ions within total salinity such as nitrate, fluoride, selenium salts and molybdenum may be harmful to livestock.

(b) Sufficient supplies of good quality water have always been critically important in all forms of agricultural enterprise. Because of the vast number of agricultural uses made of water, this beneficial use is assigned to all Oklahoma streams. It is recognized, however, that many streams are less suitable for irrigation purposes than others. The classification set forth herein is intended only as a guide in using water for this beneficial use, not in limiting the allowable levels for a stream.

Class	Suitability	Salt Concentration (mg/L)*
I	Suitable under almost all conditions	Under 700
II	Suitability dependent on crop, soil, climate, etc.	700-2,100
III	Unsuitable under most conditions	Over 2,100

*Estimated as equivalent to total dissolved solids.

(c) These guidelines are applied to the irrigation beneficial use designation for the yearly mean standard of the dissolved solid concentration in Oklahoma streams. The resulting beneficial use designations are displayed in Appendix A.

(d) For the watering of livestock the limits of tolerance vary depending on the species of animal, kind of salt present, climate, etc. "Safe upper limits" vary from 2,860 mg/L for poultry to 15,600 mg/L for sheep. For temporary use, sheep can tolerate up to 18,600 mg/L. Therefore, no absolute limitation for this beneficial use is appropriate.

[Source: Amended at 12 Ok Reg 3305, eff 7-27-95]

APPENDIX D. CLASSIFICATIONS FOR GROUNDWATER IN OKLAHOMA

(a) **Vulnerability levels of hydrogeologic basins.** Identification of vulnerability levels of hydrogeologic basins shall be as set forth in Table 1 of this Appendix. The boundaries of such hydrogeologic basins shall be as defined in the Oklahoma Water Resources Board publication number 99-1 entitled "Statewide Groundwater Vulnerability Map of Oklahoma".

(b) **Designations of "nutrient-vulnerable groundwater".** Additional designations of certain hydrogeologic basins of groundwater as "nutrient-vulnerable groundwater" shall be as set forth in Table 2 of this Appendix. The boundaries of such "nutrient-vulnerable groundwater" hydrogeologic basins shall be as defined in the Oklahoma Water Resources Board publication number 99-1 entitled "Statewide Groundwater Vulnerability Map of Oklahoma".

Table 1. Identification of Vulnerability Levels of Hydrogeologic Basins

NAME OF HYDROGEOLOGIC BASIN		VULNERABILITY LEVEL
Alluvium and Terrace Deposits	of the North Fork of the Red River	Very High
	of the Salt Fork of the Arkansas River	Very High
	of the Red River	Very High
	of the Washita River	Very High
	Enid Isolated Terrace	Very High
	Canadian River	Very High
	of the Arkansas River	Very High
	of the Cimarron River	Very High
	of the North Canadian River	Very High
	Gerty Sand	High
	all other alluvium and terrace deposits	High-Very High
Bedrock	Boone	High
	Arbuckle-Simpson	High
	Blaine	High
	Elk City	High
	Cedar Hills	Moderate
	Antlers	Moderate
	Arbuckle-Timbered Hills	Moderate
	Arkansas Novaculite	Moderate
	Rush Springs	Moderate
	Vamoosa-Ada	Moderate
	Central Oklahoma	Moderate
	Ouachita Mountains	Low
	Ogallala	Low
	Cretaceous	Low
	Permian	Low
	Pennsylvanian	Low
	Mesozoic	Very Low
	Tishomingo Granite	Very Low
	Washita Igneous	Very Low

The vulnerability level may vary within each hydrogeologic basin, depending on site-specific hydrogeologic factors.

Table 2. Designations of Nutrient-Vulnerable Groundwater

NAME OF HYDROGEOLOGIC BASIN		VULNERABILITY LEVEL
Alluvium and Terrace Deposits	of the North Fork of the Red River	Very High
	of the Salt Fork of the Arkansas River	Very High
	of the Red River	Very High
	of the Washita River	Very High
	Enid Isolated Terrace	Very High
	Canadian River	Very High
	of the Arkansas River	Very High
	of the Cimarron River	Very High
	of the North Canadian River	Very High
	Gerty Sand	High
	all other alluvium and terrace deposits	High-Very High
Bedrock	Boone	High
	Arbuckle-Simpson	High
	Blaine	High
	Elk City	High

APPENDIX E. REQUIREMENTS FOR DEVELOPMENT OF SITE SPECIFIC CRITERIA FOR METALS

A. General

Numerical criteria for total recoverable metals to protect aquatic life are found in OAC 785:45-5-12(f)(6)(G). For permitting purposes, such criteria for total recoverable Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Silver, and Zinc may be translated into dissolved metals criteria using the conversion factors in OAC 785:45-5-12(f)(6)(H).

An additional alternative which may be utilized for permitting purposes is to determine site specific criteria from either the total recoverable or the dissolved criteria. However, federal regulations found at 40 CFR 122.45(C) require that permit limits must be expressed as total metals. Therefore, if dissolved criteria are implemented, they must be translated to site specific total metals criteria to be used in the issuance of permit limits consistent with OAC 785:46.

The permitting authority may issue a total recoverable permit limit if statewide total recoverable criteria are appropriate in the permitting authority's view, and/or satisfactory in the permittee's view. If permit limits obtained using total recoverable criteria are unsatisfactory to the permittee, the permittee may attempt to obtain different permit limits by developing site specific criteria in accordance with the provisions of this Appendix.

Implementation of site specific criteria may reduce the margin of safety afforded by implementation of criteria per 785:45-5-12(f)(6)(G). Therefore, it is important that background concentration (which reduces the assimilation capacity of receiving water) be accounted for when site specific criteria are implemented. Background concentration determination requires a minimum of twelve samples in Oklahoma.

In order to develop permissible site specific criteria for the metals specified above, this Appendix must be followed to the satisfaction of the permitting authority and the OWRB. A work plan explaining sampling and analysis procedures and quality assurance/quality control must be approved by the OWRB prior to commencing the site-specific study. Upon completion, results must be submitted to OWRB and the permitting authority. Additional technical guidance is available through Appendices J and L of the "Water Quality Standards Handbook", EPA publication no. 823-B-94-005a (August 1995). Permittees are strongly encouraged to evaluate both the discharge and receiving water using clean sampling techniques.

Upon OWRB approval, site specific criteria shall be promulgated as part of this Appendix following the next subsequent permanent rulemaking to amend OAC 785:45.

B. Site Specific Criteria Applicability

Oklahoma's site specific criteria apply where the maximum concentration on the chronic regulatory mixing zone boundary occurs under critical conditions for small and medium size streams. Oklahoma's site specific criteria apply on the acute regulatory mixing zone boundary for large streams. Critical conditions include regulatory effluent and receiving stream flows. OAC 785:46-5-2(C) requires that effluent flow, Q_e , be the highest monthly averaged discharge if sufficient data is available, or the design flow otherwise. When chronic criteria implementation is appropriate, OAC 785:45-5-4 requires that the receiving stream flow, Q_u , be the larger of 7Q2 or 1 cfs. One cfs shall be used if the 7Q2 cannot be determined.

The maximum concentration on the mixing zone boundary may be simulated by mixing effluent and receiving water. Percent effluent in receiving water, PE, depends on dilution capacity and shall not exceed 100%. Dilution capacity, Q^* , $/ Q_e/Q_u$ for streams.

The following formulas shall be used to determine PE for receiving streams:

When chronic long term average (as provided in 785:46-5-5) is less than acute long term average (as provided in 785:46-5-6), a chronic site specific criterion may be developed.

For streams with large dilution capacities, PE equals $(194Q^*) / (1 + Q^*)$, $Q^* < \text{or equal to } 0.1823$.

For streams with intermediate dilution capacities, PE equals $(100) / (6.17 - 15.51Q^*)$, $0.1823 < Q^* < 0.3333$.

For streams with small dilution capacities, PE equals 100%, $Q^* > \text{or equal to } 0.3333$.

When an acute long term average is less than chronic, an acute site specific criterion may be developed.

PE equals Q_e , Q_e in cfs.

PE < or equal to 100%.

Site specific criteria in Oklahoma lakes are also based on the maximum concentration on the mixing zone boundary. The following formulas shall be used to determine PE for lakes:

PE equals $4.96D$, $D > \text{or equal to } 3$ feet where D is pipe diameter.

PE equals $23.8/W$, $W > \text{or equal to } 3$ feet where W is canal width.

PE is less than or equal to 100% for streams and lakes.

If PE is less than 10%, then effluent water effect ratios shall use PE = 10%.

C. Sampling Procedures

The permittee shall collect both receiving water and effluent, and mix them together to obtain PE. Ambient water collections shall be representative of low stream flow events and collected at a location unaffected by the discharge being permitted. Twenty-four (24) hour composite effluent samples representative of normal operation shall be collected at the outfall such that any periodic toxic discharges are captured. Outfalls may be combined proportional to flow if in close proximity. Clean sampling techniques shall be used where possible and samples shall be analyzed by an Oklahoma certified laboratory utilizing generally accepted methods. Dilution water must be made in accordance with EPA's acute biomonitoring manual entitled "Methods for Measuring the Acute Toxicity of Effluents to Aquatic Organisms", EPA publication no. 600/4-90-027 (1991). The pH, hardness, conductivity and alkalinity must be similar to that of the receiving water.

Three options are available if the permittee decides to develop site specific metals criteria for permitting purposes instead of utilizing the total recoverable criteria specified in 785:45-5-12(f)(6)(G).

1. Option 1: Water Effects Ratio (WER)

The permittee may obtain a site specific water effects ratio (WER) to translate a state wide total criterion to a site specific total criterion if the existing permit does not contain requirements for toxicity reduction evaluations or implementation of pollution prevention efforts. Toxicity tests using both laboratory dilution water and PE water must be performed. PE water is obtained by first determining the amount of water required for the toxicity test (e.g. 1L). Since $PE / 100V_e / (V_e + V_r)$, where V_e and V_r are volumes of effluent and receiving water required for the toxicity test, respectively, $V_e = PE/100$ (L). If PE = 25%, $V_e = .25L$. Given that $V_e + V_r = 1$ (L) in this example, $V_r = 1 - PE/100$, or .75L.

Toxicity tests using two different species are required. Acute 48-hour static renewal definitive toxicity tests shall be performed by the permittee in accordance with the EPA guidance for acute testing identified above. LC50 tests shall be used to determine WER's for both acute and chronic criteria. Toxicity tests require adding metal to both PE and dilution water. It shall not be acceptable to estimate metal concentrations by measuring the amount added. Total recoverable concentrations must be used to obtain LC50's for both test species for PE and laboratory water in Option 1.

Multiple WER's must be performed. At a minimum, three tests in three different seasons must be performed for two test species. WER is computed as $LC50_{\text{dilution}}/LC50_{\text{PE}}$. A geometric mean of the WER's is the final water effect ratio, FWER. A minimum of four WER's must be used in the computation of FWER. An explanation of any WER's obtained but not used in computation of FWER must be provided to the permitting authority and OWRB. The total criterion specified in 785:45-5-12(f)(6)(G) is divided by FWER to obtain a site specific total criterion. Background concentration must be determined to use with the site specific criterion to develop permit limits.

2. Option 2: Dissolved To Total Fraction

Dissolved and total recoverable concentrations must be obtained to determine a dissolved to total fraction. Samples must be taken from the effluent, receiving water and PE water. The dissolved to total fraction must be successfully computed a minimum of ten times.

The dissolved to total fraction is defined as $f_i / C_{Di}/C_{Ti}$, where C_{Di} is the dissolved concentration in the i th PE sample, and C_{Ti} is the total recoverable concentration. The dissolved fraction for the site shall be determined as the geometric mean for the n samples.

$$\therefore f = \exp \left[\sum_{i=1}^n [\ln(f_i)]/n \right]$$

To develop a site specific criterion from the dissolved fraction alone, divide the dissolved criterion determined from 785:45-5-12(f)(6)(H) by f . The result is a site specific total recoverable criterion.

3. Option 3: Combining f And FWER

The most definitive method of developing a site specific criterion is to modify a dissolved criterion to account for both the fraction of the concentration biologically available and the difference between the toxicity of the metal in the laboratory dilution water and in PE water. In order to perform option 3, WER's must be obtained using dissolved concentrations. This accounts for differences between the toxicity of the dissolved metal in laboratory dilution water and dissolved metal in PE water.

A translator, T , is obtained as the product of f and dissolved FWER. T is divided into the dissolved criterion determined from 785:45-5-12(f)(6)(H) to obtain a site specific total recoverable criterion.

D. Site Specific Criteria Which Have Been Developed in Particular Cases

Subsequent to the initial promulgation of this Appendix, there have been cases in which interested persons have developed site specific criteria for particular discharges or other circumstances in accordance with this Appendix. Such site specific criteria are set forth below. These site specific criteria shall be interpreted according to the following:

C_{ast} = acute statewide total criterion
 C_{cst} = chronic statewide total criterion
 C_{asd} = acute statewide dissolved criterion
 C_{csd} = chronic statewide dissolved criterion
 S_{ast} = acute site specific total criterion
 S_{cst} = chronic site specific total criterion
 $FWER_t$ = final total water effects ratio
 $FWER_d$ = final dissolved water effect ratio
 f = dissolved to total fraction

Acute site specific criteria are appropriate for large streams and chronic site specific criteria are appropriate for small and medium size streams.

Options Allowed In Appendix E

Option 1

$$S_{ast} = C_{ast}/FWER_t$$

$$S_{cst} = C_{cst}/FWER_t$$

Option 2

$$S_{ast} = C_{csd}/f$$

$$S_{cst} = C_{csd}/f$$

Option 3

$$S_{ast} = C_{csd}/(fxFWER_d)$$

$$S_{cst} = C_{csd}/(fxFWER_d)$$

1. City of Blackwell Discharge to Chikaskia River

A site specific criteria modification study has been satisfactorily completed for cadmium for the City of Blackwell.

$$FWER_t = 0.0989$$

$$FWER_d = 0.2905$$

$$f = 0.18$$

The results of the study allow any of the four following criteria to be utilized.

$C_{cst} = 2.2 \mu\text{g/L}$	Statewide criterion
$S_{cst} = 22.24 \mu\text{g/L}$	Option 1
$S_{cst} = 10.68 \mu\text{g/L}$	Option 2
$S_{cst} = 36.76 \mu\text{g/L}$	Option 3

The discharger may choose the above criterion it wishes to use for discharge permit calculations.

2. AES Shady Point Discharge to Poteau River

A site specific criteria modification study has been satisfactorily completed for copper for AES Shady Point.

$$FWER_t = 0.0876$$

$$FWER_d = 0.1306$$

$$f = 0.5936$$

The results of the study allow any of the four following criteria to be utilized.

$C_{cst} = 9.50 \mu\text{g/L}$	Statewide criterion
$S_{cst} = 65 \mu\text{g/L}$	Option 1
$S_{cst} = 15.3 \mu\text{g/L}$	Option 2
$S_{cst} = 74 \mu\text{g/L}$	Option 3

The discharger may choose the above criterion it wishes to use for discharge permit calculations.

3. City of Idabel Discharge to Mud Creek

A. Lead

A site specific criteria modification study has been satisfactorily completed for lead for the City of Idabel.

$$FWER_t = 2.5912$$

$$FWER_d = 0.2914$$

$$f = 0.7157$$

The results of the study allow any of the four following criteria to be utilized.

$C_{cst} = 2.3492 \mu\text{g/L}$	Statewide criterion
$S_{cst} = 0.9066 \mu\text{g/L}$	Option 1
$S_{cst} = 2.7104 \mu\text{g/L}$	Option 2
$S_{cst} = 9.3036 \mu\text{g/L}$	Option 3

The discharger may choose the above criterion it wishes to use for discharge permit calculations.

B. Nickel

A site specific criteria modification study has been satisfactorily completed for nickel for the City of Idabel.

$$FWER_t = 1.1244$$

$$FWER_d = 0.9735$$

$$f = 0.5798$$

The results of the study allow any of the four following criteria to be utilized.

$C_{cst} = 128.8834 \mu\text{g/L}$	Statewide criterion
$S_{cst} = 114.6242 \mu\text{g/L}$	Option 1
$S_{cst} = 221.6226 \mu\text{g/L}$	Option 2
$S_{cst} = 227.6697 \mu\text{g/L}$	Option 3

The discharger may choose the above criterion it wishes to use for discharge permit calculations.

C. Zinc

A site specific criteria modification study has been satisfactorily completed for zinc for the City of Idabel.

$$FWER_t = 0.6714$$

$$FWER_d = 0.7178$$

$$f = 0.6213$$

The results of the study allow any of the four following criteria to be utilized.

$C_{cst} = 96.6161 \mu\text{g/L}$	Statewide criterion
$S_{cst} = 129.0082 \mu\text{g/L}$	Option 1
$S_{cst} = 137.4592 \mu\text{g/L}$	Option 2
$S_{cst} = 191.4874 \mu\text{g/L}$	Option 3

The discharger may choose the above criterion it wishes to use for discharge permit calculations.

4. Oklahoma Gas & Electric Mustang Generating Station Discharge to North Canadian River at NE 1/4 of NE 1/4 of SE 1/4 of Section 36, T 12 N, R 5 WIM, Canadian County, Oklahoma

A site specific criteria modification study has been satisfactorily completed for copper for the Oklahoma Gas & Electric Mustang Generating Station discharge to the North Canadian River.

$$FWER_t = 0.053$$

$$FWER_d = 0.224$$

$$f = 0.368 (0.37)$$

The results of the study allow any of the four following criteria to be utilized. All criteria are calculated at an in-stream hardness of 334 mg/L.

$C_{cst} = 35.9 \mu\text{g/L}$	Statewide criterion
$S_{cst} = 677 \mu\text{g/L}$	Option 1
$S_{cst} = 94.0 \mu\text{g/L}$	Option 2
$S_{cst} = 416.0 \mu\text{g/L}$	Option 3 (Recommended in OG&E study)

$C_{ast} = 59.8 \mu\text{g/L}$	Statewide criterion
$S_{ast} = 1128 \mu\text{g/L}$	Option 1
$S_{ast} = 156.0 \mu\text{g/L}$	Option 2
$S_{ast} = 692.0 \mu\text{g/L}$	Option 3 (Recommended in OG&E study)

The discharger may choose the above criterion it wishes to use for discharge permit calculations.

APPENDIX F. STATISTICAL VALUES OF THE HISTORICAL DATA FOR MINERAL CONSTITUENTS OF WATER QUALITY (BEGINNING OCTOBER 1976 ENDING SEPTEMBER 1983, EXCEPT AS INDICATED)

The numbers in the "Segment" column on the far left of this Appendix refer to "WQM Segment" numbers which are described in the Introduction to Appendix A of this Chapter. The numbers in the "Monitoring Station" column refer to the abbreviated numbers of the monitoring stations administered by the U.S. Geological Survey ("USGS"); to change an abbreviated number to the complete number used by the USGS, add the prefix digits "07" and add suffix digits of zeroes in order to produce an eight-digit number. The letters "AVG" in the "Monitoring Station" column indicate an average wherever there are multiple monitoring stations in a WQM Segment; the numbers to the right of the "AVG" represent the averages of the historical data for the various monitoring stations.

<u>SEGMENT</u>	<u>MONITORING STATION</u>	<u>CHLORIDE (mg/l)</u>		<u>SULFATE (mg/L)</u>		<u>TOTAL DISSOLVED SOLIDS AT 180°C (mg/L)</u>	
		<u>YEARLY MEAN STANDARD</u>	<u>SAMPLE STANDARD</u>	<u>YEARLY MEAN STANDARD</u>	<u>SAMPLE STANDARD</u>	<u>YEARLY MEAN STANDARD</u>	<u>SAMPLE STANDARD</u>
120400	1945	563	794	126	165		
	1946	313	412	91	116		
	AVG	472	656	113	147		
120410	16557	649	843	145	179	998	1168
120420	1644	774	1014	150	180		
	1645	695	881	150	183		
	1650	703	934	173	220		
	AVG	708	905	152	186	1398*	1743*
121300	1765	96	135	31	41		
	17805	88	113	64	84		
	1784	87	112	62	79		
	AVG	91	121	52	67	440*	544*
121400	1730	43	59	28	36		
	1742	128	178	263	477		
	1755	127	170	37	47		
	AVG	96	132	116	199	461*	585*
121500	1714	41	54	59	79		
	1760	74	101	71	95		
	17862	62	80	64	81	335	403
	1788	57	73	67	89		
	1790	70	94	58	75		
	AVG	60	80	64	84	335	403
121510	1710	66	94	58	133		
121600	1850	28	38	116	167		
	1880	18	23	63	82		
	1905	13	17	42	54		
	19122	17	21	30	50		
	1915	33	49	53	72		
	19155	60	103	134	222		
	1935	17	20	43	51	187	206
	AVG	25	36	67	96	187	206
121610	19156	103	152	117	159		

<u>SEGMENT</u>	<u>MONITORING STATION</u>	<u>CHLORIDE (mg/l)</u>		<u>SULFATE (mg/L)</u>		<u>TOTAL DISSOLVED SOLIDS AT 180°C (mg/L)</u>	
		YEARLY MEAN STANDARD	SAMPLE STANDARD	YEARLY MEAN STANDARD	SAMPLE STANDARD	YEARLY MEAN STANDARD	SAMPLE STANDARD
121700	1955	15	18	25	33		
	1960	17	23	25	34		
	1965	19	27	24	34		
	1970	12	16	24	33		
	1980	46	70	48	77	156	194
	AVG	21	30	29	41	156	194
220100	247535	12	16	21	28	157	199
	2485	12	15	22	29	157	199
	24944	60	100	58	84		
	AVG	20	31	28	36		
220200	2464	247	330	74	92	490*	596*
220300	2450	83	96	52	60	320	358
220600	2315	354	475	268	361		
	2316	70	120	76	117		
	2317	292	385	234	318		
	AVG	241	330	194	268	612*	777*
310800	3310	112	142	574	765	1192	1527
310810	3281	114	149	772	981		
	3285	145	199	717	923		
	AVG	133	180	738	946		
310820							
310830	3244	119	177	1227	1467	2004	2391
	3255	142	182	1197	1494	1244	2725
	3265	237	370	973	1241		
	AVG	160	249	1124	1398	2043	2599
310840	3242	163	251	1228	1532	2377	3038
311100	3155	1904	2591	869	1163		
	3157	467	256	151	242		
	3159	460	687	180	266		
	3160	1670	2353	727	1005	4064	5347
	AVG	1059	1508	455	634	4064	5347
311200	31272	2163	2927	1744	2706		
	3135	144	198	222	310		
	3136	320	436	272	389		
	AVG	229	313	246	348		
311210	3134	66	90	317	436		
311300	3090	62	94	133	171		
	3110	81	105	80	99	478	570
	AVG	73	101	109	138	478	570
311300 Trib. to Ninemile Creek**		231	262	128	145	809	879

311300 Ninemile Creek**		232	279	124	150	830	950
311500	3045	347	543	879	1187	1801	2323
<u>SEGMENT</u>	<u>MONITORING STATION</u>	<u>CHLORIDE (mg/l)</u>		<u>SULFATE (mg/L)</u>		<u>TOTAL DISSOLVED SOLIDS AT 180°C (mg/L)</u>	
		<u>YEARLY MEAN STANDARD</u>	<u>SAMPLE STANDARD</u>	<u>YEARLY MEAN STANDARD</u>	<u>SAMPLE STANDARD</u>	<u>YEARLY MEAN STANDARD</u>	<u>SAMPLE STANDARD</u>
311310	3112	16	23	22	27	126	151
	311505	355	547	140	216		
	AVG	292	450	116	179	126	151
311510	3015	2263	3778	1417	1879		
	3030	6750	10488	1427	1841		
	AVG	4541	1859	1422	1860	2334*	2815*
311600	3005	740	1123	1745	2128		
	30111	743	966	1597	2068	3730	4762
	AVG	704	1011	1680	2102	3730	4762
311800	3035	10940	15147	1892	2271	37568*	58087*
410100	33682	320	442	227	310		
410200	3385	33	49	22	28		
410210	3371	11	16	19	26		
	3379	13	19	51	84		
	2290	31	53	134	243		
	AVG	18	29	66	113		
410300	3362	17	25	23	30		
	33675	17	24	24	33		
	AVG	17	24	23	32		
410310	3357	11	14	<20	<20	31	38
410400	3340	38	53	52	75	114*	172*
	3350	104	145	56	82		
	AVG	53	74	54	77		
410600	3325	41	67	33	47		
410700							
520500	2420	351	452	169	218	1032	1285
	2422	324	412	140	185		
	AVG	346	423	163	211	1032	1285
520510	2417	307	395	146	188		
520520	2399	220	261	259	316		
	24155	739	873	198	246	1207	1537
	AVG	504	595	280	278	1207	1537
520530	2390	281	324	446	606		
	2395	269	341	443	588		
	AVG	270	324	415	519	1145*	1399*
520600	2294	261	345	318	428		

520610	2292	261	362	449	590		
520620	2285	310	456	557	695	1463	1841

<u>SEGMENT</u>	<u>MONITORING STATION</u>	<u>CHLORIDE (mg/l)</u>		<u>SULFATE (mg/L)</u>		<u>TOTAL DISSOLVED SOLIDS AT 180°C (mg/L)</u>	
		YEARLY MEAN STANDARD	SAMPLE STANDARD	YEARLY MEAN STANDARD	SAMPLE STANDARD	YEARLY MEAN STANDARD	SAMPLE STANDARD
520700	2424	218	282	137	187		
	2425	220	286	101	134		
	2435	226	296	95	128	723	927
	AVG	222	288	111	149	723	927
520710	24235	252	327	156	201	844	1090
520800	2300	100	127	34	43		
	2310	719	1048	58	87		
	AVG	532	752	55	81	1551*	2083*
520810						265*	294*
620900	1610	4084	5695	549	707	7953	10362
	1615	3708	5103	441	564		
	AVG	3894	5395	494	635	7553	10012
620910	1584			1901	2400		
	1591	6638	8976	723	908	14809	19580
	15972	176	221	255	306	885	1041
	15975	205	266	246	300	875	1087
	1600	5053	6779	666	847		
	1605	683	1008	543	730		
	AVG	4568	6439	730	927	9042	12466
620920	15795	7054	10309	1840	2983	16864	25021
	15796	477	678	2004	2560	3753	4756
	AVG	3518	5131	1929	2753	10200	14788
621000	1505	4786	6974	648	829	10834	15265
	15226	1176	1583	298	376		
	AVG	3065	4405	481	613	10834	15265
621010	14845	397	574	951	1179	1886	2297
621100	1520	379	573	167	236		
621200	14814	428	643	122	169		
	1525	714	1030	171	228	1112	1409
	1530	574	860	39	51		
	AVG	567	837	114	153	1112	1409
621210		482*	728*	132*	182*		

720500	2340	1449	1885	891	1195	3817	4910
	2375	438	544	590	773	1893	2382
	2380	291	362	614	829		
	AVG	868	1118	736	984	2575	3275
720900							

*When information obtained from Appendix B, Oklahoma's Water Quality Standards, 1982.

**Data collected from June 1999 through September 2000.

APPENDIX G. NUMERICAL CRITERIA TO PROTECT BENEFICIAL USES

(a) **Introduction.** This Appendix prescribes numerical limits for certain criteria which are necessary to protect beneficial uses as and wherever designated. Table 1 is a chart that states the numerical limits to protect the beneficial use and subcategories of Fish and Wildlife Propagation for the single parameter of dissolved oxygen as set forth in OAC 785:45-5-12(f)(1). The latter limits vary depending upon several factors including the pertinent subcategory or fishery class, the time of the year, and the seasonal temperature. Table 2 prescribes the numerical limits that cannot be exceeded for certain substances or parameters in order to protect beneficial uses and subcategories as set forth in OAC 785:45-5-10(1), 785:45-5-10(6), 785:45-5-12(f)(6), and 785:45-5-20. The numerical limits may vary from one beneficial use or subcategory to another according to how the criteria are required by OAC 785:45 or OAC 785:46 to be implemented. Table 3 is a chart that sets forth conversion factors that can be used to determine criteria for dissolved metals in order to protect the beneficial use of Fish and Wildlife Propagation and all its subcategories as set forth in OAC 785:45-5-12(f)(6)(H).

(b) **Explanations for abbreviations and certain terms in Tables.**

- (1) "CAS #" refers to a parameter's Chemical Abstract Service registry number. Each of these numbers is a unique identifier of a particular compound with a particular structure; the number provides additional and further specificity for the parameter in question than simply identifying it by a systematic, generic, proprietary, or [trivial] name. The CAS number has no particular chemical significance.
- (2) Equations are prescribed for those substances the toxicity of which varies with water chemistry.
- (3) Metals that are listed in Tables 2 and 3 shall be measured as total metals in the water column.

Table 1.

**Dissolved Oxygen Criteria to Protect Fish and Wildlife Propagation
and All Subcategories Thereof**

SUBCATEGORY OF FISH AND WILDLIFE PROPAGATION (FISHERY CLASS)	DATES APPLICABLE	D.O. CRITERIA (MINIMUM) (mg/L)	SEASONAL TEMP. (°C)
Habitat Limited Aquatic Community			
Early Life Stages	4/1 - 6/15	4.0	25 ³
Other Life Stages			
Summer Conditions	6/16 - 10/15	3.0	32
Winter Conditions	10/16 - 3/31	3.0	18
Warm Water Aquatic Community			
Early Life Stages	4/1 - 6/15	6.0 ²	25 ³
Other Life Stages			
Summer Conditions	6/16 - 10/15	5.0 ²	32
Winter Conditions	10/16 - 3/31	5.0	18
Cool Water Aquatic Community And Trout			
Early Life Stages	3/1 - 5/31	7.0 ²	22
Other Life Stages			
Summer Conditions	6/1 - 10/15	6.0 ²	29
Winter Conditions	10/16 - 2/28	6.0	18

¹ For use in calculation of the allowable load.

² Because of natural diurnal dissolved oxygen fluctuation, a 1.0 mg/l dissolved oxygen concentration deficit shall be allowed for not more than eight (8) hours during any twenty-four (24) hour period.

³ Discharge limits necessary to meet summer conditions will apply from June 1 of each year. However, where discharge limits based on Early Life Stage (spring) conditions are more restrictive, those limits may be extended to July 1.

TABLE 2.
Numerical Criteria to Protect Beneficial Uses and All Subcategories Thereof

PARAMETER	CAS #	Fish & Wildlife Propagation		Public and Private Water Supply (Raw Water)	Fish Consumption and Water	Fish Consumption
		ACUTE	CHRONIC			
		µg/L	µg/L	mg/L	µg/L	µg/L
INORGANICS						
Arsenic	7440382	360.0	190	0.04		205.0
Barium	7440393			1.00		
Cadmium	7440439	e(1.128[ln(hardness)] - 1.6774)	e(0.7852[ln(hardness)]-3.490)	0.020	14.49	84.13
Cadmium for trout streams		e(1.128[ln(hardness)] - 3.828)	e(0.7852[ln(hardness)]-3.490)	0.020	14.49	84.13
Chromium (total)			50	0.050	166.3	3365.0
Copper	7440508	e(0.9422[ln(hardness)]- 1.3844)	e(0.8545[ln(hardness)]-1.386)	1.000		
Cyanide	57125	45.93	10.72	0.200		
Flouride @ 90° F				4.0		
Lead	7439921	e(1.273[ln(hardness)] - 1.460)	e(1.273[ln(hardness)] - 4.705)	0.100	5.0	25.0
Mercury	7439976	2.4	1.302	0.002	0.050	0.051
Nickel	7440020	e(0.8460[ln(hardness)]+3.3612)	e(0.846[ln(hardness)]+ 1.1645)		607.2	4583.0
Nitrates (as N)	14797558			10.000		
Selenium	7782492	20.0	5	0.010		
Silver	7440224	e(1.72[ln(hardness)] - 6.52)		0.050	104.8	64620.0
Thallium	7440280	1400.0			1.7	6.0
Zinc	7440666	e(0.8473[ln(hardness)]+0.8604)	e(0.8473[ln(hardness)]+0.7614)	5.000		
ORGANICS						
1-1-1 TCE	71556				3094.0	173100.0
2-4-5-TP Silvex	93721		10.0	0.010		
2-4-6-TNT		450.0				

2-4-D	94757			0.100		
PARAMETER	CAS #	Fish & Wildlife Propagation		Public and Private Water Supply (Raw Water)	Fish Consumption and Water	Fish Consumption
		ACUTE	CHRONIC			
		µg/L	µg/L	mg/L	µg/L	µg/L
Acrylonitrile	107131	7550.0			.59	6.7
Aldrin	309002	3.0			0.001273	0.001356
Benzene	71432		2200.0		11.87	714.1
Benzidine	92875			0.001		
Butylbenzyl				0.150		
Carbon Tetrachloride	56235				2.538	44.18
Chlordane	57749	2.4	0.17		0.00575	0.00587
Chloroform	67663				56.69	4708.0
Chlorpyrifos (Dursban)	2921882	0.083	0.041			
DDT		1.1	0.001		0.005876	0.0059
Demeton	8065483		0.1			
Detergents (total)				0.200		
Dichlorobromomethane	75274				1.9	157.0
Dieldrin	60571	2.5	0.0019		0.001352	0.00144
Dioxin	1746016				0.00000013	0.000000138
Endosulfan		0.22	0.056			
Endrin	72208	0.18	0.0023	0.0002	.7553	0.814
Ethylbenzene	100414				3120.0	28720.0
Guthion	86500		0.01			
Heptachlor	76448	0.52	0.0038		0.00208	0.00214
Hexachlorobenzene	118741				0.009026	0.009346
Lindane	58899	2.0	0.08	0.004	.1458	0.4908

Malathion	121755		0.10			
Methoxychlor	72435		0.03	0.100		
PARAMETER	CAS #	Fish & Wildlife Propagation		Public and Private Water Supply (Raw Water)	Fish Consumption and Water	Fish Consumption
		ACUTE	CHRONIC			
		µg/L	µg/L	mg/L	µg/L	µg/L
Methylene blue active substances			0.001	0.500		
Mirex	2385855		0.001			
Parathion	56382	0.065	0.013			
PCB			0.044		0.00079	0.00079
PCE (Tetrachloroethylene)	127184	5280.0			8.0	88.5
Pentachlorophenol	87865	e[1.005(pH)-4.830	e[1.005(pH)-5.290]		1014.0	29370.0
Phenol	108952				20900.0	4615000.0
Phthalate esters				0.003		
RDX	121824	2591.5				
Toluene	108883		875.0		10150.0	301900.0
Toxaphene	8001352	0.78	0.0002	0.005		

Table 3.
Conversion Factors for Total to Dissolved Fractions [H=hardness as CaCO₃ (mg/L)]

METAL	CAS #	ACUTE	CHRONIC
Arsenic	7440382	1.000	1.000
Cadmium	7440439	1.136672 - 0.041838lnH	1.101672 - 0.041838 lnH
Copper	7440508	0.960	0.960
Lead	7439921	1.46203 - 0.145712 lnH	1.46203 - 0.145712 lnH
Mercury	7439976	0.85	N/A
Nickel	7440020	0.998	0.997
Silver	7440224	0.85	N/A
Zinc	7440666	0.978	0.986

APPENDIX H. BENEFICIAL USE DESIGNATIONS FOR CERTAIN GROUNDWATER [NEW]

[RESERVED]